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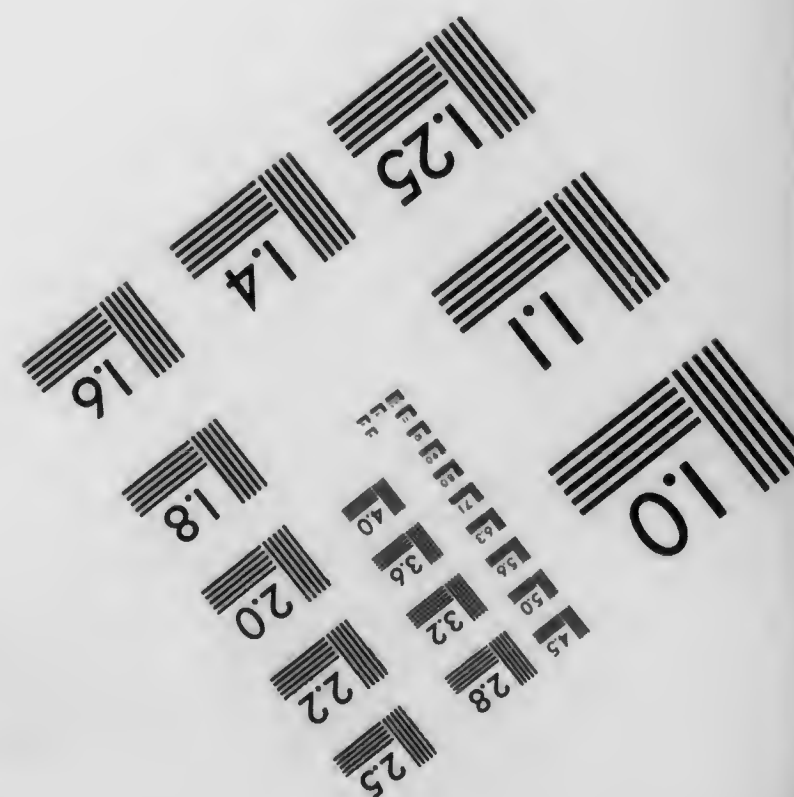
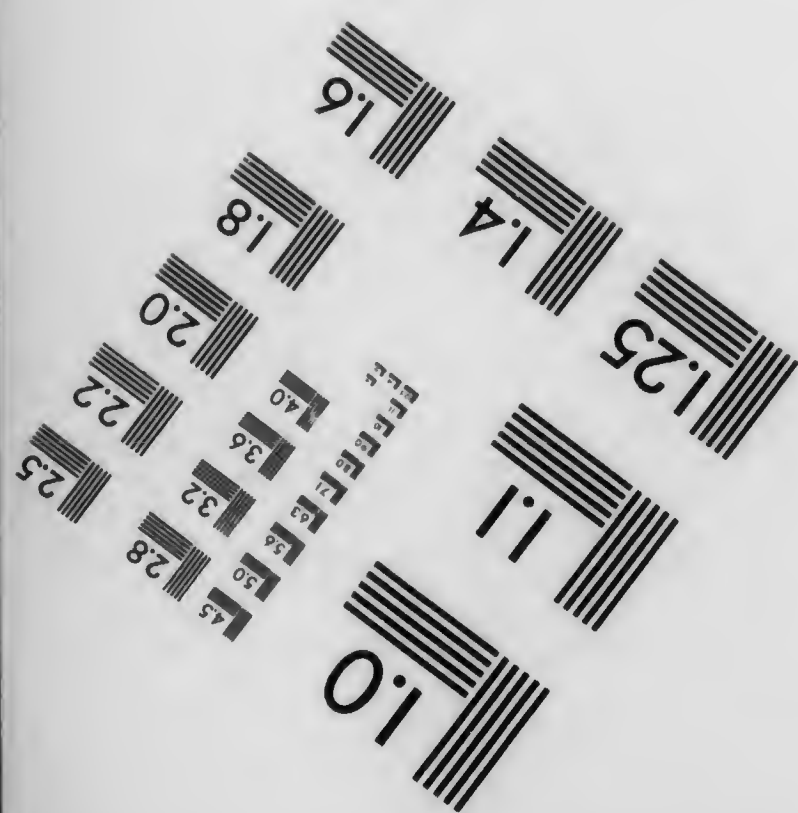
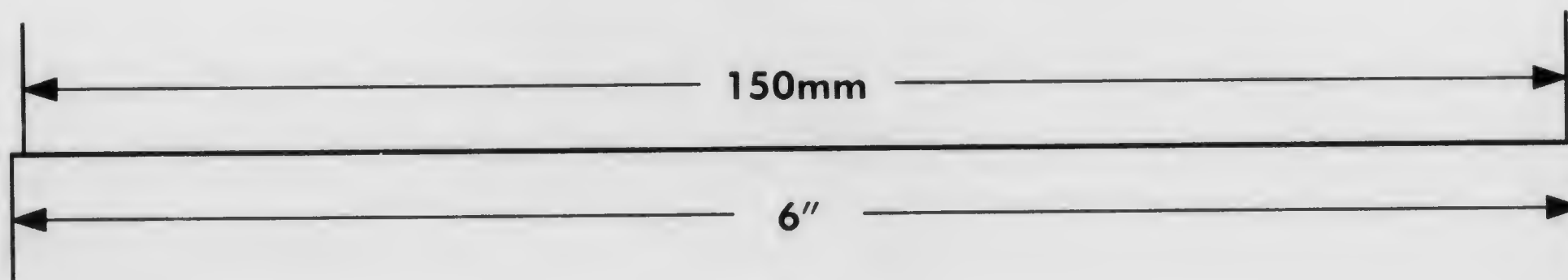
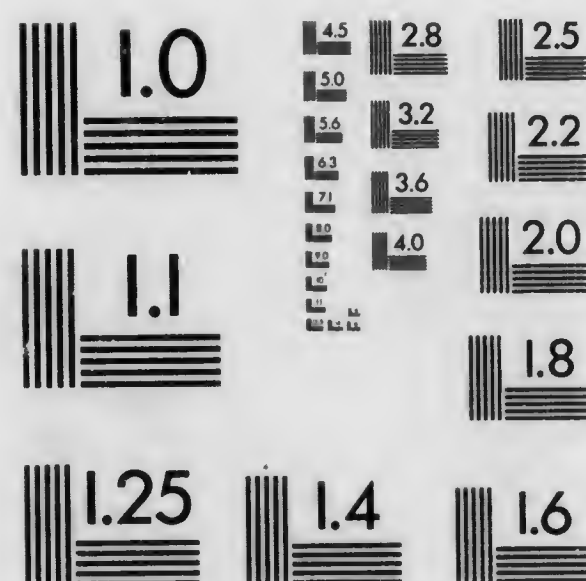
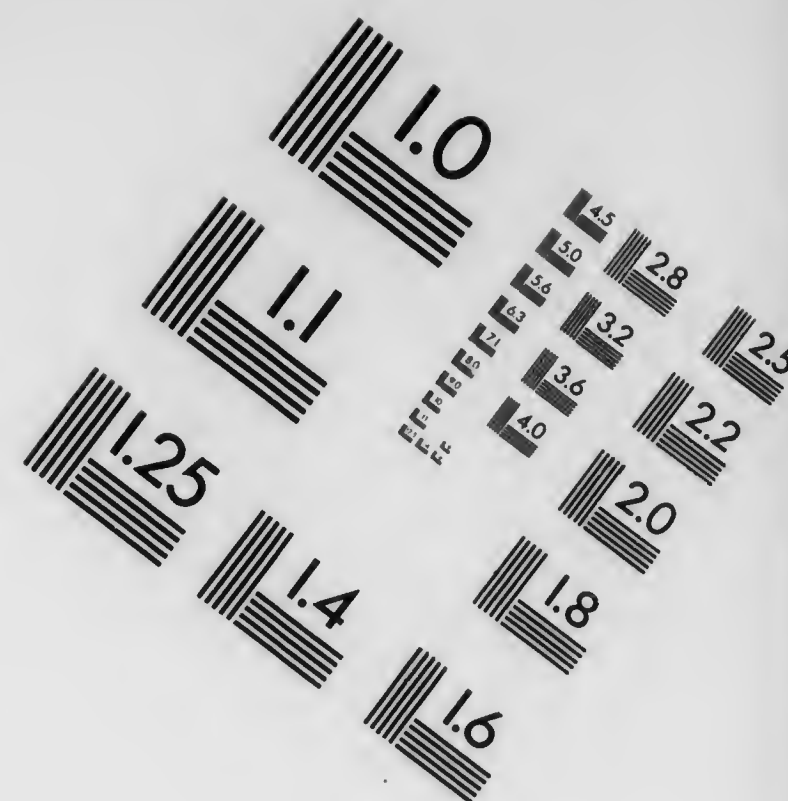
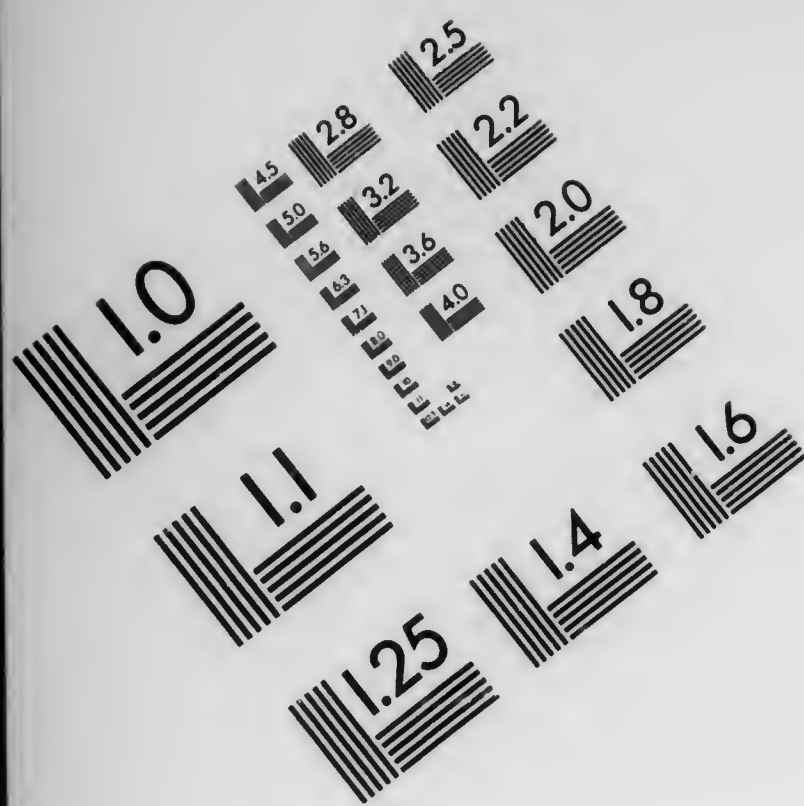
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DEPARTMENT OF FORESTRY

Bulletin No. 12—April, 19

Insects as Carriers of the Chestnut
Blight Fungus

BY

R. A. STUDHALTER, Formerly Agent, Investigations in Forest
Pathology, U. S. Bureau of Plant Industry

AND

A. G. RUGGLES, Formerly Entomologist, Pennsylvania
Chestnut Tree Blight Commission

ISSUED BY DIRECTION OF THE COMMISSIONER OF FORESTRY

HARRISBURG, PA.:
WM. STANLEY RAY, STATE PRINTER
1915

Commonwealth of Pennsylvania

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INSECTS AS CARRIERS OF THE CHESTNUT BLIGHT FUNGUS¹

HISTORICAL INTRODUCTION.

The relation which various insects bear to the dissemination of plant diseases is a subject which has received the attention of a large number of plant pathologists within recent years. In the majority of cases, however, in which insects have been held responsible for the spread of plant diseases, the evidence given in support of the accusation was quite meager and only circumstantial. In presenting a review of the literature bearing on this subject, no claim is made for completeness; it is our intention merely to point out some of the noteworthy instances in which insects have been considered responsible for the dissemination of fungi or bacteria which are saprophytic or paratitic upon plants.

Taking up first the bacterial side of the question, we find that as early as 1892 Waite (53, 54) reported definite experiments to show that the fire blight of the pear and the apple can be carried by insects. Bees, wasps, and flies were shown to carry the causal bacteria from blossom to blossom, and Waite showed that this mode of dissemination was the cause of the rapid spread of the disease in the spring. Furthermore, this author believed that the twig blight, caused by the same organism, frequently had its origin from bacteria carried by insects, although no experimental data are cited on this point. That this supposition is correct has since been proved by a number of workers. Extensive observations made by Jones (28) strongly indicated that new infections of the twigs of apples after the blossoming season were due largely to transmission by aphids, and this same author has also shown (28, 29) that the bark boring beetle, *Scolytus rugulosus*, causes

¹Investigations conducted jointly by the Office of Forest Pathology, Bureau of Plant Industry, and the Pennsylvania Chestnut Tree Blight Commission.

large numbers of twig infections both on apple and pear trees. The spread of the blight in nursery stock has been shown by Stewart (49, 50) frequently to be due to the tarnished plant bug, *Lygus pratensis*; and while he proved many infections to be caused by aphid punctures, he does not believe that aphids play such an important part in the dissemination of the blight as was thought by Jones.

It was early conjectured by Smith (45) and by Russell (41) that the black rot of cabbage due to *Pseudomonas campestris* may be transmitted by various insects. Evidence in support of this supposition has been brought forward by several writers; Brenner (5) showed that aphids may cause new infections, and Smith (46, pp. 306-307) succeeded in transmitting the disease by means of the larvae of a cabbage butterfly, *Plusia*.

Insects have been accused of spreading several other bacterial diseases of plants. Smith (43) cited experiments indicating that the wilt of Cucurbits due to *Bacillus tracheiphilus* may be spread by several insects. The same writer (44) also showed that the Colorado potato beetle *Leptinotarsa* (*Doryphora*) *decemlineata*, could produce new infections of *Bacillus solanacearum*, the cause of a disease of the tomato, eggplant, and Irish potato, and was led to the conclusion that insect enemies are largely responsible for the spread of the disease. Johnston (27) presents some evidence to show that the coconut bud rot may be carried by insects, and Horne, Parker, and Daines (25) suggest that the dissemination of the olive knot disease may be due to insects.

Some interesting experiments conducted by Berlese (4) show that not only are yeast cells still viable after passing through the intestine of flies, but that they even multiply and enormously increase in numbers while in the alimentary tract. His experiments lead him to the conclusion that ants and flies play a great part in the distribution, preservation, and multiplication of yeasts.

A much greater number of instances can be cited of the dissemination by insects of the spores of fungi than of bacterial diseases of plants. One of the oldest and best known examples is that of the ergot of rye. It has long been known

(de Bary, 3, p. 228) that a saccharine secretion oozes out from the conidia-bearing surface. This secretion, in which the conidia are imbedded, is eagerly sought by insects, which necessarily carry away large numbers of the conidia. A large number of species of insects has been found by Stäger (47, 48) to visit ergot-infected grasses. Mercier (35) showed that the spores were not only carried mechanically on the surfaces of the bodies of insects but that they were also found in their excrement. This latter statement, however, has been questioned by Gain (13).

Insects have been shown by various writers to carry rust spores. Magnus (33) called attention to the fact that the teleutospores of various species of *Diorchidium*, and especially *D. steudneri*, are well adapted to insect transport on account of the fact that they are set free in dew drops, or other moisture, and are sticky. Klebahn (31) thinks that insects play a part in the local dissemination of rusts in general. This author also thinks that the bright color of some rusts may attract insects. Falck (10) suggests the probability that rust pycnosporos are also distributed by insects, in the same manner as the teleutospores. Johnson (26) has made a microscopic examination of a large number of thrips found on wheat florets. A large per cent. of the thrips was found to be carrying spores; in one instance "five rust spores and three conidial spores of imperfect fungi were observed attached to the antennae and appendages of a single thrip." This writer is of the opinion that the presence of rust spores between the glumes of florets of wheat and the consequent rusting of the heads which he observed, were due in part to the activities of the thrips.

Ludwig (32, p. 369) has pointed out the close similarity between the spores of smut fungi and pollen grains. He calls attention to the fact that those smut spores which have a roughened cell wall are found on those parts of their hosts which are regularly visited by insects. Such spores very frequently develop in the anthers of insect pollinated flowers. On the other hand, the smooth walled spores are more frequently met with on those parts of plants where insects are

less commonly found, or on wind pollinated plants. An analogy with the pollen grain suggested to Ludwig that the rough walled spores are disseminated by the agency of insects, and those which are smooth walled by the wind.

That the bitter rot of apples can be carried by insects was first shown by Clinton (7), who succeeded in inoculating sound apples by keeping them in a moist chamber with some bitter rot apples and some flies of the genus *Drosophila*. Clinton was of the belief that these flies carried the ascospores from mummied apples to green apples and were thus responsible for a large number of new infections in the spring. Burrill (6) repeated Clinton's experiments with the same positive results, and also gives more data to prove that these flies are capable of spreading the disease. He reaches the conclusion, however, that insects play only a small part in the dissemination of bitter rot in the orchard.

Another very well known example of spore distribution by insects is found in the carrion fungi. This is especially true of the common stink horn, *Phallus impudicus*, which is reported as the cause of a root disease of the grape in Hungary (Istvánffy 23, 24). Von Schlechtendal (42) was the first to recognize that the spores of this species are carried by flies, which are attracted by the foetid odor of the slimy mass in which the spores are imbedded. Of the later work on this form we may mention that of Ráthay and Haas (40) and of Fulton (12). The former pointed out the special adaptation of the sporophores for insect visitation, and that other insects besides flies visit the mature spore-bearing surfaces. Fulton found by microscopic examination, that thousands of spores cling to the feet and proboscides of the flies, and that the spores are still viable after passing through the digestive tract of flies. Cobb (8) working with a species of *Ithyphallus*, closely allied to *Phallus impudicus* and paratitic on sugar cane, has shown that the spores of this fungus also are widely disseminated by flies and other insects. The number of spores per foot print of a fly may be as high as 860,000, and it was shown that these were capable of germinating. Five fly specks contained on an average of 22,400,000 spores, many of which were viable.

Heald (15) has established an intimate relation between the bud rot of carnations and certain mites. These develop in the mass of rotted petals, and the young migrate to healthy buds, carrying the spores of the causal fungus with them.

Massee (34, p. 184) has pointed out that the rapid spread of apple canker in England due to *Nectria ditissima*, coincided with the introduction of the American blight, or woolly aphis. He is of the opinion that the canker would not have been present in an epidemic form had the insect not been introduced into England.

Grossenbacher and Dugger (14) have pointed out that the blight of currants due to *Botryosphaeria ribis* may be carried by several insects, the most likely of which is the American currant borer, *Psenocerus supernotatus*. This insect was not found in blight-free plantations. The authors conclude that "since the imago eats the fungus and the larva lives as a borer in the host, the beetle's habit of oviposition may have some relation to the dissemination of the fungus and the inoculation of the host."

The statement is made by Jones, Giddings, and Lutman (30) that leaf eating insects function in the distribution of the spores of the potato fungus, *Phytophthora infestans*. A related fungus, *P. phascoli*, a mildew on the lima bean, is believed by Sturgis (52) to be spread by bees. This is based on observations in the field and on a study of the structure of the flower and pod of the lima bean.

The sooty mold of the orange and other citrous fruits, due to *Meliola camelliae*, follows the attacks of certain scales and aphid-like insects. In Florida (Webber, 55) the trouble becomes serious when it follows infestations of the white fly, *Aleyrodes citri*, and the fungus derives its nourishment from the honey dew secreted by this insect. The amount of sooty mold depends directly on the amount of honey dew present, or upon the distribution of the white fly, which, furthermore, acts as an agent in transmitting the spores of the fungus.

The mosaic disease of tobacco has generally been considered a physiological trouble. Allard (1) expresses the opinion, however, that paratitism offers the more plausible explanation of

the ultimate cause of the disease. The observations of this author indicate that aphids may sometimes be responsible for the occurrence of the trouble in the seed bed and its subsequent spread in the field. He has succeeded in keeping the disease under complete control in the greenhouse by frequent fumigations to exclude aphids.

In some of the instances cited the conclusion that insects play a part in the dissemination of these organisms was based merely upon circumstantial evidence. However, in a sufficient number of them enough substantial experimental evidence was presented to point to the importance of insects as carriers of fungous spores and of bacteria parasitic upon plants.

We may next consider the literature bearing upon the relation of insects to the spread of the chestnut blight, or bark disease, caused by the fungus, *Endothia parasitica* (Murr.) A. and A. From the very beginning of the study of this disease insects have received a good share of the blame for its spread. In 1906 Murrill (38) stated that from the numerous yellowish-brown pustules produced by the blight, "millions of minute summer spores emerge from day to day in elongated reddish-brown masses, to be disseminated by the wind and other agencies, such as insects, birds, squirrels, etc." Later in the same publication he added that "every bird and insect that rests upon an infected spot is liable to carry the spores upon its feet or body to other trees."

Several years later Hodson (22) said that "the spores are no doubt carried by animals, birds, insects, and by the shipment of infected material." The statement is made by Metcalf and Collins (37) that "there is strong evidence that the spores are spread extensively by birds, especially woodpeckers, and there is also excellent evidence that they are spread by insects and by various rodents, such as squirrels." An essentially similar statement was made the following year by Metcalf (36).

In discussing the methods by which conidia are transported from one tree to another, Rankin (39) makes the following statement: "Reasoning by analogy with what is known of the behavior of many fungi, such agencies as borers, birds, ants and the wind, etc., have been suggested but in no wise proved to be responsible."

Fulton (11) reports that a detailed study of a spot infection at Orbisonia, Pa., by Mr. R. C. Walton showed beetle larvae in or near fully nine-tenths of the old lesions, and about two-fifths of the youngest lesions. He concludes, therefore, that the larvae usually follow rather than precede the infection. Various other writers have noted this evident relation between chestnut blight cankers and the holes and tunnels of wood borers, and this is no doubt one of the reasons that insects have been so frequently suggested as carriers of spores. Anderson and Babcock (2) call attention to the fact that probably all of the larvae living in chestnut trees emerge either as adults, leaving the pupal case behind them, or else go into the ground to pupate immediately after emerging; in either case they would have very little opportunity of carrying spores from one tree to another.

Ants have also frequently been found in old blight lesions (11, 39), and have therefore been rather extensively accused of spreading the blight spores and causing infections. Anderson and Babcock (2) have carried out a number of experiments with ants taken from blight cankers. In one of these the ants were permitted to run over potato agar plates, but no colonies of *Endothia parasitica* developed. The experiment was repeated by Mr. R. D. Spencer, under Mr. Anderson's supervision, with the same negative results. We agree with Mr. Spencer (2) that the method is very likely at fault, for the comparatively slow-growing colonies of the blight fungus would soon be crowded out and overrun by other more rapid-growing fungi or bacteria. A more satisfactory method was employed in the next experiment reported by Anderson and Babcock, in which five vials of ants were placed into melted agar, which was just warm enough so that it would not solidify. The tubes were well shaken and the agar poured into Petri dishes. "Ants from three of the vials proved to have spores on them. The spores had been artificially placed on the ants in one of the vials, however. The ants in the other two had been taken from the bark of the diseased chestnut trees after a rain. This indicates that the ants can carry the spores." It would be interesting to know the actual number of spores carried in these instances.

In another experiment ants, which had been previously placed in water milky with conidia, were allowed to run in a bottle of earth. Two of these were taken out at intervals and tested in the same manner as was described in the experiment just preceding. Positive results were obtained for five hours and sixteen minutes after placing the ants into the bottle, at which time the last test was made. The authors are led to the conclusion that "this shows that ants may retain the spores long enough to carry them some distance." Here again it would be interesting to have the quantitative results and to know whether the number of spores diminished gradually from the first to the last test.

There are a number of insects known to eat the pustules of the chestnut blight fungus (9), but the most common of these in Pennsylvania is the beetle, *Leptostylus macula* Say. In order to determine whether this habit of eating the spores is beneficial, the following tests have been reported (2 and 9): A number of the beetles were fed on pustles for five days, after which their viscera were removed with sterile needles, put into melted potato agar and plated out. Bacteria developed in the plates but no fungous colonies were obtained. Other beetles of this species were fed on ascosporeic stromata for a day and "caused to excrete the fecal material by a light pressure on the abdomen with the forceps. The fecal material was caught in potato agar tubes and plated out with the same negative results as in the preceding experiment. These experiments indicate that the insect may really be beneficial," (2) since the spores are not passed out in the excreta to germinate on other hosts. The present writers agree that this beetle is beneficial in so far as it destroys the spores and pustules, but the point seems to have been overlooked that a beetle of this habit has excellent opportunities for collecting and carrying away a large number of spores on its feet and body, and that new infections may be caused as a result of the rattling off of these spores.

The writers above referred to (2) came to the general conclusion that "insects are not important agents in the spread of the blight, except in so far as they produce wounds by which the spores may enter."

There has been much conjecture as to the part played by the bast miner, *Ectoedemia phleophaga*, an insect which is very abundant on the chestnut. The adult of this insect is an extremely small Micro-Lepidopterous form which, judging from its life history, cannot in our opinion cause new infections directly. It is of great importance, however, from the fact that the large number of openings which this form makes in the bark of the chestnut serve as points in which new infections may start from spores introduced by other means than by the bast miner.

METHOD.

The authors wish to express their appreciation for the many helpful suggestions and criticism of Dr. F. D. Heald, under whose supervision the work was carried out. Credit is also due to Prof. W. M. Wheeler of Harvard University for the determination of all the ants herein reported.

The insects used in these tests were for the most part collected in the field, but some of them were ants used in certain laboratory and insectary tests. Those brought in from the field were collected at four different points in Pennsylvania,—West Chester, Valley Forge, Lehigh, and Fairmount Park, Philadelphia. All but three of these insects (Nos. 69-71) were picked directly from chestnut blight cankers with sterile forceps, and dropped into sterile tubes plugged with cotton. In some instances use was made of cyanide tubes, also plugged with cotton and sterilized in the autoclave. It had been previously determined that the potassium cyanide has no appreciable effect on spores of the blight fungus (16).

When brought to the laboratory each insect was dropped into a flask containing 100 cc. of sterile tap water. The flask was shaken at intervals and the insects were always permitted to remain in the water for at least several hours before the plate cultures were made, or, in many instances in which they were brought to the laboratory in the late afternoon or evening, they were kept in the flasks all night, thus affording sufficient opportunity for the spores to become loosened from their feet and body. By means of a sterile pipette small quantities

of this wash water were transferred to Petri dishes and a tube of melted 3% dextrose agar (+10), which had been previously cooled to 42-45°C., added to each plate. The quantities of wash water found the most satisfactory and used in nearly all cases were 1 cc., 10 drops and 5 drops to each Petri dish, although in a few instances it was thought advisable to add to these a greater dilution, and 1 cc. from a second flask (containing 1 cc. of wash water in 100 cc.) was used. A record was kept of the number of drops delivered by each pipette, and this was found to be fairly constant for any single pipette, although it varied considerably for the different ones used.

The plates were incubated in the laboratory, the temperature of which was kept approximately at 25° C. Colonies suspected of being the blight fungus were marked on the fourth day with India ink, and the counts were verified two or three days later, at which time any doubtful colonies were transferred to agar slants to make certain of their identity. A count was also made of the number of bacterial or yeast colonies, the number of fungous colonies not *Endothia parasitica*, and the number of species of fungi represented other than the blight fungus, as nearly as could be determined from cultural characteristics. Knowing the calibration of the pipette used, it was an easy matter to compute from the above information the number of viable spores of the blight fungus, the number of spores of other fungi and the number of bacteria and yeasts carried by each insect.

Those insects which had been used in the laboratory and insectary tests were collected and cultures made from them in essentially the same way as those brought in from the field, except that no record was kept of the number of fungous species represented in the cultures.

After the plates had been poured, the insects were preserved for classification, and beginning with insect No. 34, a few cc. of formalin were added to the wash water to inhibit the growth of spores. At a later time the wash water from those insects yielding positive results was centrifuged in 10 cc. quantities and the sediments thus obtained thrown together and centrifuged again. All but a small quantity of water at the bottom

of the centrifuge tube was then carefully drawn off with a pipette, thus concentrating the entire sediment in 1 cc. or less of water. This sediment was given a thorough microscopic examination, primarily to determine whether the spores of the blight fungus present were pycnospores or ascospores, but also to get an idea of the other kinds of spores which the insects were carrying.

RESULTS OBTAINED FROM THE CULTURES.

As has already been stated, insects Nos. 1-18 and 23-25 were taken from certain experiments carried on in the laboratory and insectary at Philadelphia. All of these were red ants belonging to the same species (Table I). Before being tested Nos. 1-3 and 10-18 were permitted to run over pieces of moistened chestnut bark bearing active perithecia, while Nos. 4-9 had run over bark bearing spore horns.

Of these 21 ants, 5 yielded positive results, two of them carrying 2,733 and 4,000 spores of *Endothia parasitica* respectively (Table I). Only one of these five had had access to pycnidial material, while the other four had been on and about bark bearing active perithecia.

TABLE I.—RESULTS OBTAINED FROM CULTURES.

Number.	Name of Insect.	Date of collection, 1913.	Locality at which collected (Penna.)	No. of bacterial and yeast colonies.	No. of <i>Endothia parasitica</i> colonies.	No. of other fungous colonies.	No. of fungous species not <i>Endothia parasitica</i> .
1	Ant. <i>Formica rufa</i> , Linn. Subsp. <i>integra</i> , Nyl.	Feb. 7	Laboratory.	Present	866	?	.....
2	Ant. <i>Formica rufa</i> , Linn. Subsp. <i>integra</i> , Nyl.	Feb. 7	Laboratory.	Present	2733	?	.....
3	Ant. <i>Formica rufa</i> , Linn. Subsp. <i>integra</i> , Nyl.	Feb. 7	Laboratory.	?	4000	?	.....
4	Ant. <i>Formica rufa</i> , Linn. Subsp. <i>integra</i> , Nyl.	Mar. 11	Insectary.	300	0	1300	.....
5	Ant. <i>Formica rufa</i> , Linn. Subsp. <i>integra</i> , Nyl.	Mar. 11	Insectary.	400	0	400	.....
6	Ant. <i>Formica rufa</i> , Linn. Subsp. <i>integra</i> , Nyl.	Mar. 11	Insectary.	300	0	3000	.....
7	Ant. <i>Formica rufa</i> , Linn. Subsp. <i>integra</i> , Nyl.	Mar. 14	Insectary.	2460	0	500	.....
8	Ant. <i>Formica rufa</i> , Linn. Subsp. <i>integra</i> , Nyl.	Mar. 14	Insectary.	13400	0	200	.....
9	Ant. <i>Formica rufa</i> , Linn. Subsp. <i>integra</i> , Nyl.	Mar. 14	Insectary.	11	0	9000	.....
10	Ant. <i>Formica rufa</i> , Linn. Subsp. <i>integra</i> , Nyl.	Apr. 4	Insectary.	1350	0	1252	.....
11	Ant. <i>Formica rufa</i> , Linn. Subsp. <i>integra</i> , Nyl.	Apr. 4	Insectary.	686	838	1904	.....
12	Ant. <i>Formica rufa</i> , Linn. Subsp. <i>integra</i> , Nyl.	Apr. 8	Insectary.	10080	0	400	.....
13	Ant. <i>Formica rufa</i> , Linn. Subsp. <i>integra</i> , Nyl.	Apr. 8	Insectary.	218	0	218	.....
14	Ant. <i>Formica rufa</i> , Linn. Subsp. <i>integra</i> , Nyl.	Apr. 8	Insectary.	291	0	146	.....
15	Ant. <i>Formica rufa</i> , Linn. Subsp. <i>integra</i> , Nyl.	Apr. 8	Insectary.	73	0	383	.....
16	Ant. <i>Formica rufa</i> , Linn. Subsp. <i>integra</i> , Nyl.	Apr. 18	Insectary.	296	0	148	.....
17	Ant. <i>Formica rufa</i> , Linn. Subsp. <i>integra</i> , Nyl.	Apr. 18	Insectary.	825	0	375	.....
18	Ant. <i>Formica rufa</i> , Linn. Subsp. <i>integra</i> , Nyl.	Apr. 18	Insectary.	9152	0	3763	.....
19	Ant. <i>Formica rufa</i> , Linn. Subsp. <i>integra</i> , Nyl.	May 19	West Chester.	147	0	1983	.....
20	Ant. <i>Formica rufa</i> , Linn. Subsp. <i>integra</i> , Nyl.	May 19	West Chester.	0	0	158	.....
21	Ant. <i>Formica rufa</i> , Linn. Subsp. <i>integra</i> , Nyl.	May 19	West Chester.	68577	74	0	.....
22	Ant. <i>Formica rufa</i> , Linn. Subsp. <i>integra</i> , Nyl.	May 21	Insectary.	280	0	605	.....
23	Ant. <i>Formica rufa</i> , Linn. Subsp. <i>integra</i> , Nyl.	May 21	Insectary.	1680	1400	700	.....
24	Ant. <i>Formica rufa</i> , Linn. Subsp. <i>integra</i> , Nyl.	May 21	Insectary.	0	0	560	.....
25	Ant. <i>Formica rufa</i> , Linn. Subsp. <i>integra</i> , Nyl.	May 19	West Chester.	6	1061	0	.....
26	Fly, Trypetid.	May 19	West Chester.	0	0	132	.....
27	Fly, Trypetid.	May 19	West Chester.	0	0	671	.....
28	Fly, Trypetid.	May 19	West Chester.	0	0	840	.....
29	Ant. <i>Leptothorax curvispinosus</i> Mayl.	June 3	Valley Forge.	0	0	960	.....
30	Beetle, <i>Leptostylus macula</i> Say.	June 3	Valley Forge.	880	336960	0	.....
31	Ant. <i>Leptothorax curvispinosus</i> Mayl.	June 3	Valley Forge.	0	0	0	.....

32	Ant. <i>Formica fusca</i> L. var. <i>subsericea</i> Say.	June 3	Valley Forge.	0	0	0	.....
33	Nymph of a Heteropteron.	June 3	Lehighton.	0	0	840	.....
34	Nymph of a tree hopper.	June 5	Lehighton.	229	0	637	.....
35	Nymph of a tree hopper.	June 5	Lehighton.	100	0	300	.....
36	Nymph of a tree hopper.	June 5	Lehighton.	100	0	1212	.....
37	Nymph of a tree hopper.	June 5	Lehighton.	Numerous	0	2438	.....
38	Crane fly, Tipula sp.	June 5	Lehighton.	361	0	451	.....
39	Canker worm larva, <i>Tornus scolopachnartus</i> Guen.	June 5	Lehighton.	300	0	300	.....
40	Ant. <i>Camponotus herculeanus pennsylvanicus</i>	June 12	West Chester.	0	0	0	.....
41	De Greer var. <i>ferrugineus</i> Fabr.	June 12	West Chester.	0	0	0	.....
42	De Greer var. <i>ferrugineus</i> Fabr.	June 12	West Chester.	840	0	242	.....
43	De Greer var. <i>ferrugineus</i> Fabr.	June 12	West Chester.	22086	0	1087	.....
44	Beetle, <i>Rhynchites</i> sp.	June 12	West Chester.	0	145340	0	.....
45	Beetle, <i>Helops micans</i> Fab.	June 12	West Chester.	9896	6715	247	.....
46	Ant. <i>Formica fusca</i> L. var. <i>subsericea</i> Say.	June 12	West Chester.	0	0	0	.....
47	Ant. <i>Camponotus herculeanus pennsylvanicus</i>	June 12	Valley Forge.	547	168	2080	.....
48	Aphid, <i>Lachnus</i> sp.	June 13	Valley Forge.	0	100	0	.....
49	Beetle, <i>Cerambycidae</i> .	June 13	Valley Forge.	1566	0	880	.....
50	Beetle, <i>Meracantha contracia</i> Beauv.	June 13	Valley Forge.	116100	0	982	.....
51	Beetle, <i>Meracantha contracia</i> Beauv.	June 13	Valley Forge.	1000	462	682	.....
52	De Greer var. <i>ferrugineus</i> Fabr.	June 13	Valley Forge.	34200	0	1400	.....
53	Aphid, <i>Lachnus</i> sp.	June 13	Valley Forge.	18263	151	943	.....
54	Beetle, <i>Helops micans</i> Fab.	June 13	Valley Forge.	30720	4792	634	.....
55	Spider, <i>Phalangium</i> sp.	June 13	Valley Forge.	2640	0	746	.....
56	Beetle, <i>Arthromacra aenea</i> Say.	June 13	Valley Forge.	12830	0	2746	.....
57	Spider, <i>Phalangium</i> sp.	June 16	Fairmount Park, Philadelphia.	390	0	650	.....
58	Beetle, <i>Coccinella novemnotata</i> Herbst.	June 16	Fairmount Park, Philadelphia.	0	0	180	.....
59	Beetle, <i>Coccinella novemnotata</i> Herbst.	June 16	Fairmount Park, Philadelphia.	0	0	1561	.....
60	Ant. <i>Formica fusca</i> L. var. <i>subsericea</i> Say.	June 16	Fairmount Park, Philadelphia.	0	0	0	.....
61	Ant. <i>Formica fusca</i> L. var. <i>subsericea</i> Say.	June 16	Fairmount Park, Philadelphia.	0	0	0	.....
62	Ant. <i>Formica fusca</i> L. var. <i>subsericea</i> Say.	June 19	West Chester.	100	200	409	.....
63	Beetle, <i>Leptostylus macula</i> Say.	June 19	West Chester.	0	8538	4615	.....
64	Beetle, <i>Leptostylus macula</i> Say.	June 19	West Chester.	0	100	269	.....
65	Beetle, <i>Leptostylus macula</i> Say.	June 19	West Chester.	0	1098	446	.....
66	Beetle, <i>Leptostylus macula</i> Say.	June 19	West Chester.	0	100	394	.....
67	Beetle, <i>Leptostylus macula</i> Say.	June 19	West Chester.	0	500	200	.....
68	Beetle, <i>Leptostylus macula</i> Say.	June 19	West Chester.	180	0	2400	.....
69	Robber fly, <i>Asilus</i> sp.	June 19	West Chester.	1230	840	357	.....
70	Crane fly, Tipula sp.	June 19	West Chester.	1680	0	2800	.....
71	Beetle, <i>Cystela sericea</i> Forst.	June 19	West Chester.	860	0	1720	.....
72	Ant. <i>Formica fusca</i> L. var. <i>subsericea</i> Say.	June 19	West Chester.	1000	0	0	.....
73	Moth, <i>Arthromacra aenea</i> Say.	June 19	West Chester.	Present	0	0	.....
74	Beetle, <i>Arthromacra aenea</i> Say.	June 19	West Chester.	860	306	1433	.....
75	Ant. <i>Formica fusca</i> L. var. <i>subsericea</i> Say.	June 19	West Chester.	0	0	0	.....

All of the remaining insects were brought to the laboratory from four different points in the field. In all 52 insects were thus brought in, and in addition tests were made of two spiders. Five orders of insects were represented (Table II), and positive results were obtained from insects in all of these except the Lepidoptera, of which only two members were tested. Of the 52 insects from the field 19 were found to be carrying spores of the blight fungus, but both of the spiders yielded negative results. The number of viable spores of *Endothia parasitica* per insect ranged from 74 to 336,960, and five yielded over 4,000 spores each. An abstract of these results has already been published (51).

Reference has been made in the introduction to *Leptostylus macula*, one of the beetles which feeds on pustules of the blight fungus (Figs. 1 and 2). Only eight of these beetles were tested, but all of them yielded positive results. It will be noted that of all the insects tested, the three which yielded the highest numbers of spores of the blight fungus belonged to this species of beetle. A photograph was made of the plate cultures from one of these, insect No. 30, after 6 days of growth, and this is represented in Fig. 3.

On the strength of these results we cannot agree with the conclusions drawn by Craighead (9) and by Anderson and Babcock (2), for the large numbers of spores carried by this beetle certainly indicate that it may be an important agent in the dissemination of the blight fungus.

It has been shown by Anderson and Babcock (see p. 14) that spores will stick to the bodies of ants during their normal movements in a bottle of earth for at least five hours. In our tests most of the insects were brought in from the field in glass tubes. Those from West Chester and Valley Forge were kept in these tubes for at least two hours before they were transferred to flasks of water, and those from Lehigh for a much longer time. The fact that positive results were obtained from many of these bears out the results of the above mentioned writers.

In this connection, however, it might be asked whether the spores might not stick to the feet and body of the insects to such an extent that they would not be brushed off during any

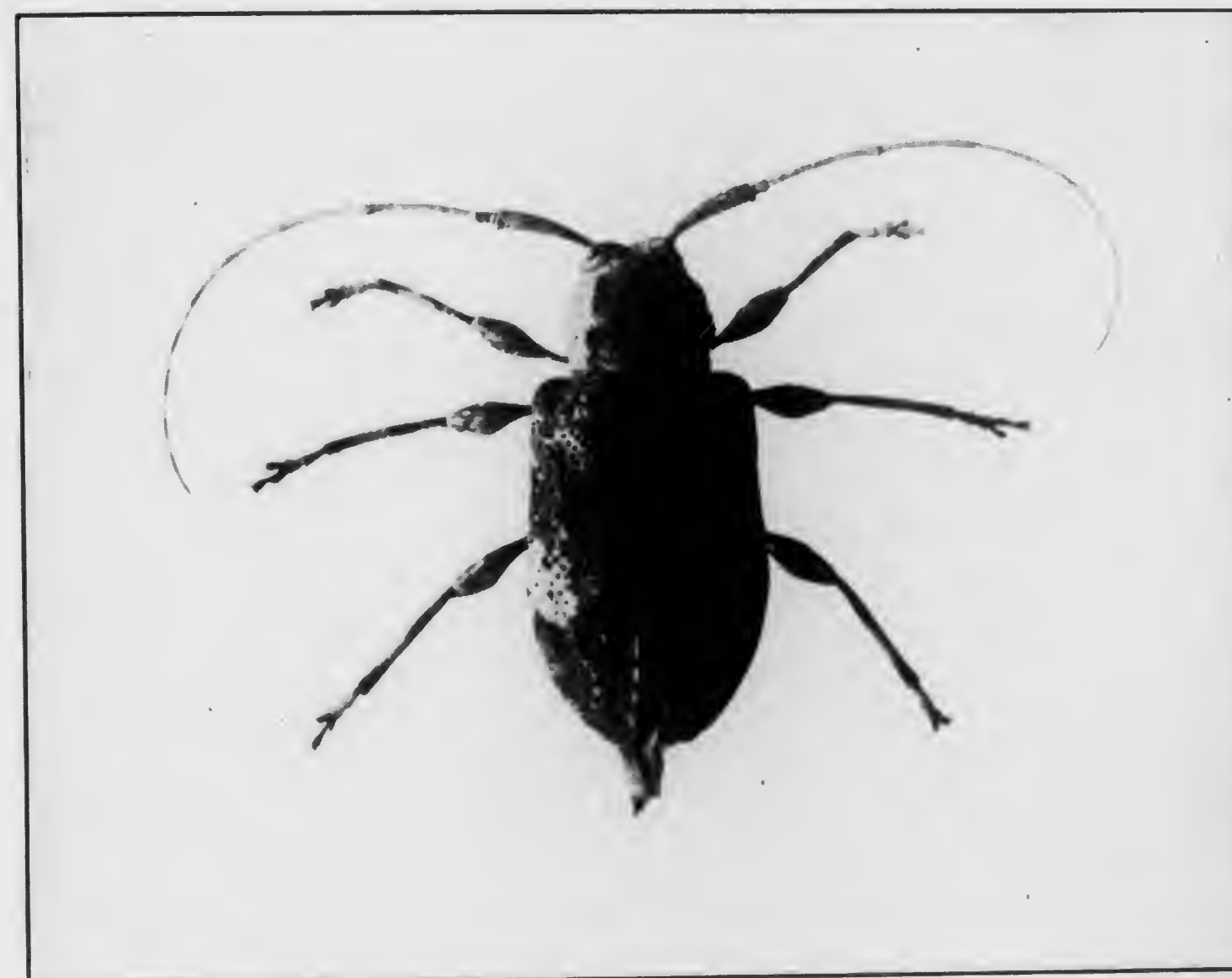


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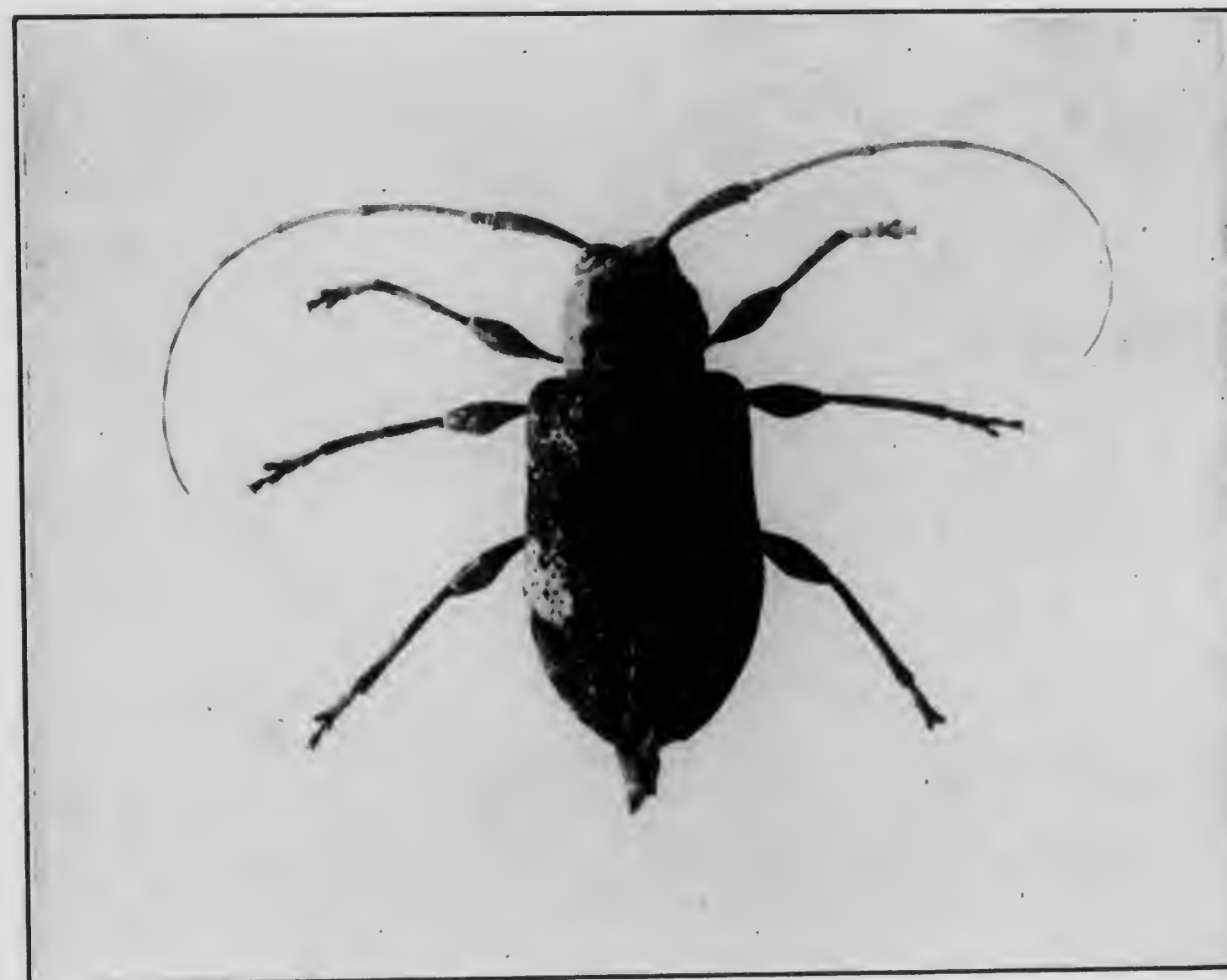


Fig. 1.



Fig. 2

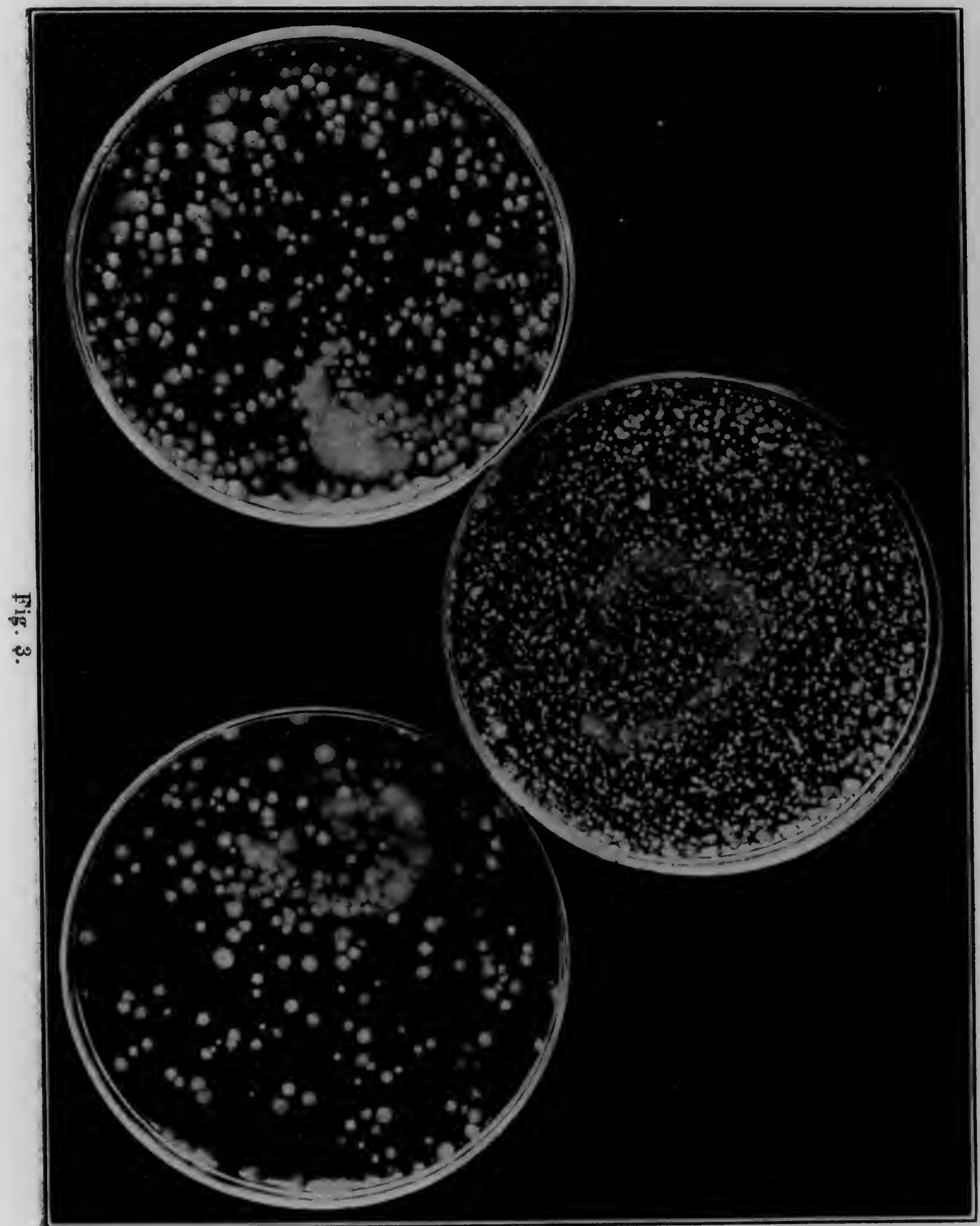
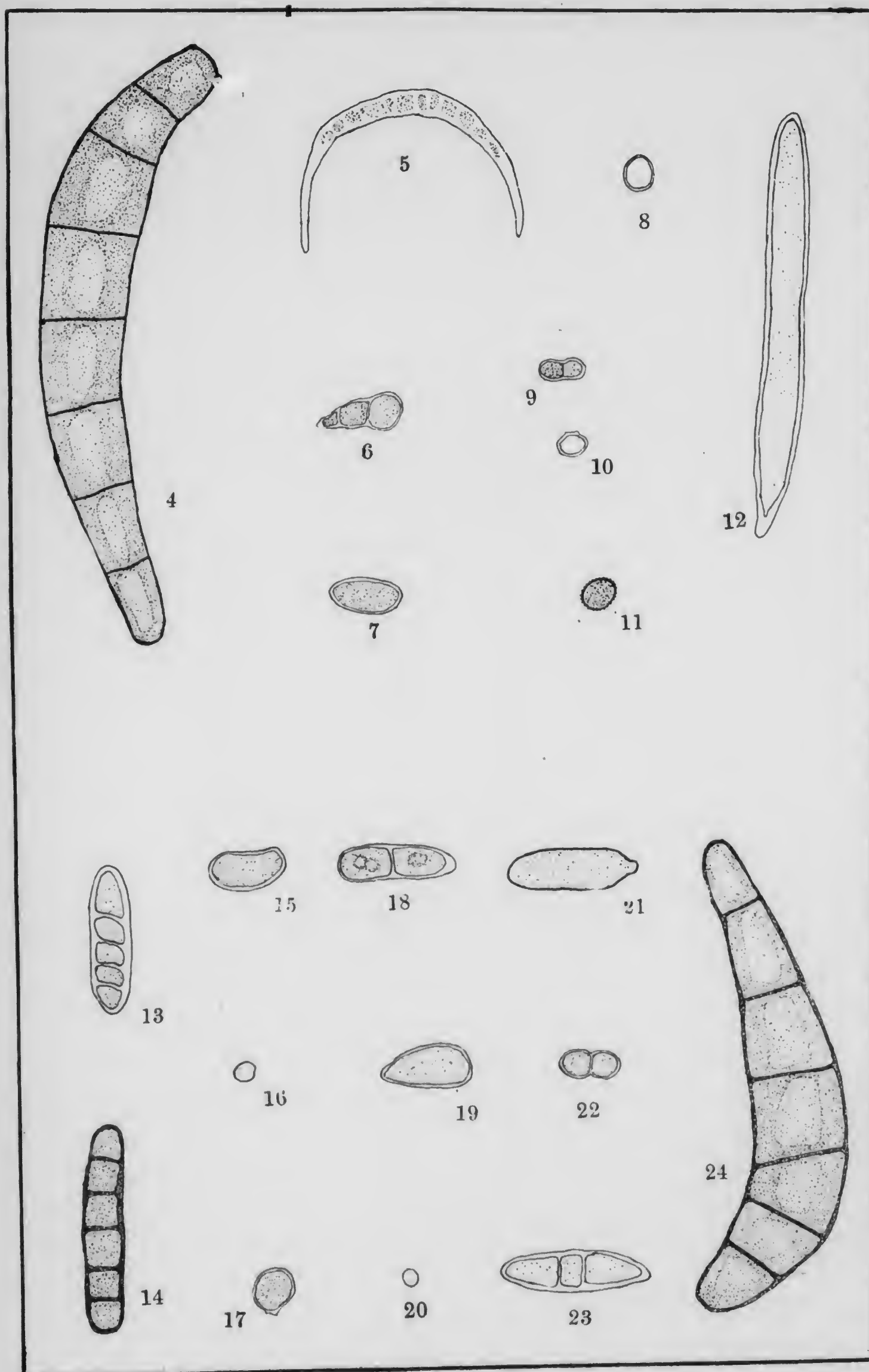


Fig. 3.



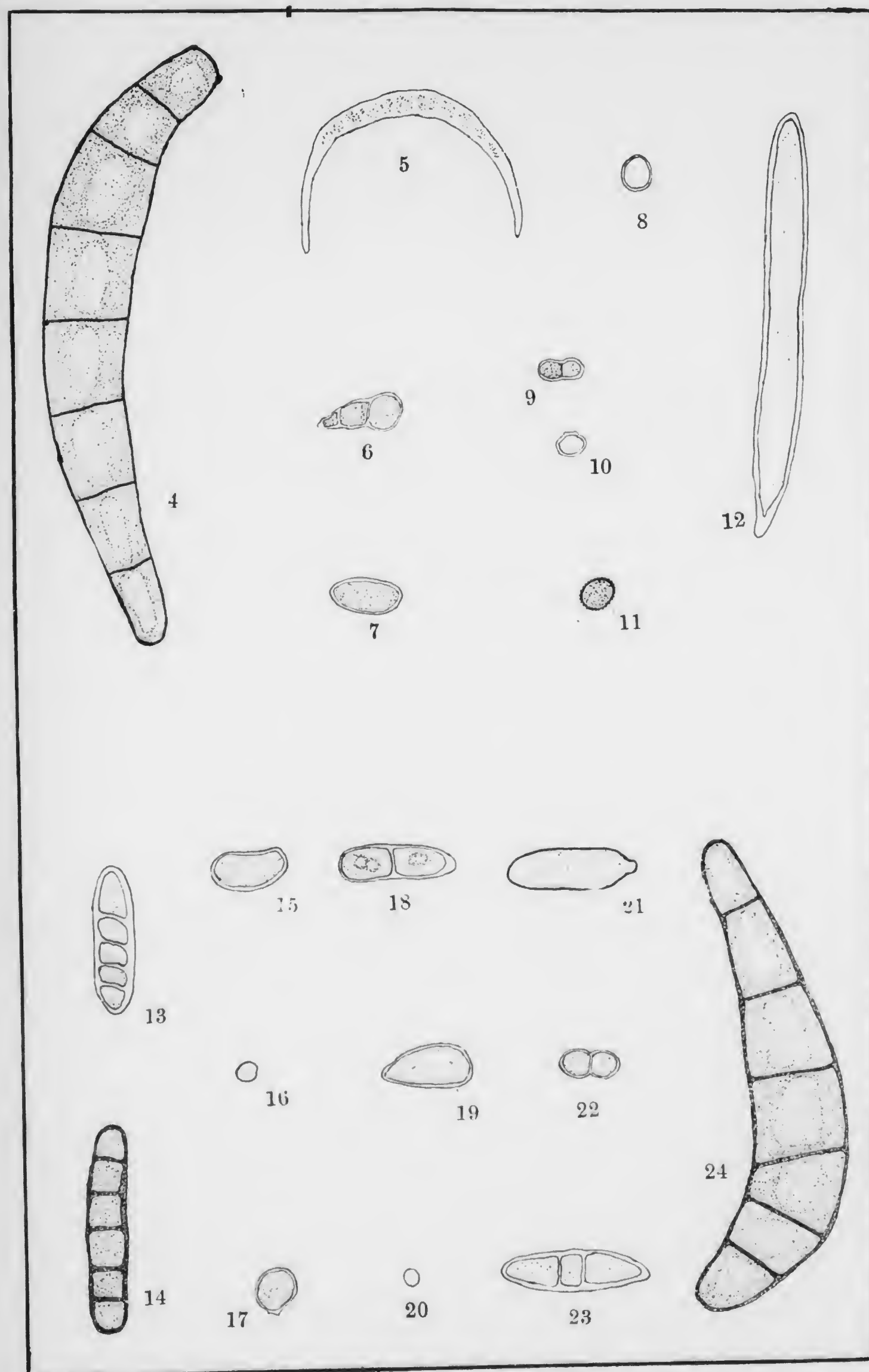
Figs 4-24.

normal movements on the part of the insect. In order to get some evidence on this point plate cultures were made from the glass tubes in which insects Nos. 63, 64, and 65 were confined during transit from the field. These three insects were *Leptostylus macula*, taken at West Chester in the afternoon of June 19. After they had been in the glass tubes for about two hours, they were taken out and transferred to flasks of water. On the following day 1 or 2 cc. of sterile water was poured into each tube, which was shaken vigorously, and the water then emptied into a Petri dish and agar poured over it. It will be noticed from the results obtained (Table III) that a fair percentage of the spores originally adhering to the beetles had been shaken from their bodies by their movements within the glass tubes.

The time of development of the colonies of the blight fungus in the cultures indicated that almost all of them originated from pycnospores (17), but a very few of them plainly had their origin from ascospores. The colonies obtained in the plates from insects Nos. 1, 2, 3, and 22, however, started from ascospores, but this is to be expected from the fact that these insects had had access to ascospore material only.

TABLE II.
SUMMARY OF RESULTS OBTAINED FROM CULTURES.

Kinds of Insects.	Number tested.	Number yielding positive results.	Largest No. of <i>Endothia parasitica</i> colonies per single insect.
Hemiptera,	7	3	249
Coleoptera:			
<i>Leptostylus macula</i> ,	8	8	336,960
All other beetles,	11	4	6,715
Lepidoptera,	2	0	.....
Diptera,	6	1	1,061
Hymenoptera:			
Ants from the field,	18	3	300
Ants from laboratory and insectary,	21	6	4,000
Spiders,	2	0	.....
Grand total,	75	24	.....
Minus ants from laboratory and insectary,	21	6	
Total insects and spiders from the field,	54	19	



Figs 4-24.

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Spiders,	2	0	
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TABLE III.
NUMBER OF *Endothia parasitica* SPORES DISLODGED FROM THE
FEET AND BODY OF *Leptostylus macula* BY ITS OWN
MOVEMENTS.

Insect number.	No. of <i>Endothia parasitica</i> spores obtained in the cultures.	No. of <i>Endothia parasitica</i> spores obtained from the vials.
63	200	11
64	8,533	85
65	100	3

A comparison of the results from the insects with those from birds tested in a somewhat similar manner (21) shows that the birds carried a larger number of spores of the blight fungus. But it must be remembered that the surface area of the body of the insects is but a small fraction of that of the parts of the birds tested—the head, bill, feet, wing, and tail feathers,—and these latter also offer better opportunities for the lodgment of spores than the smoother bodies of many insects, such as ants. The maximum number of spores of the blight fungus obtained from a single bird was 757,074 not much more than twice the maximum, 336,960, obtained from a single insect. In proportion to size, therefore, insects may carry a much larger number of spores of *Endothia parasitica* than birds. Although the insects probably do not carry the spores to as great distances as birds, especially migratory birds, they can nevertheless carry large enough numbers of spores to be important agents in spreading the blight locally.

In the work on birds as carriers (21) it was found that the highest numbers of spores of the blight fungus were obtained two to four days after a rain, and that the birds were carrying pycnosporos only. Not a sufficient number of collections of insects was made to get any definite relation of the number of spores carried to rain periods. It may be stated, however, that nearly all of the insects brought in from the field were taken four days or more after a rain, for May and June, 1913, were rather dry months. Since the insects were carrying pycnosporos almost exclusively we believe that they too will be found

to carry a larger number of spores of *Endothia parasitica* shortly after rain periods than at other times. It is a noteworthy fact that insects Nos. 63 to 68, all *Leptostylus macula*, and all yielding positive results, were taken at West Chester twelve days after a rain.

The large numbers of spores carried by *L. macula* is no doubt explained by the fact that many spores must necessarily adhere to the body of this beetle while it is eating pustules of the blight fungus. It would be expected that this beetle would carry both pycnosporos and ascospores, and such was the case, although the latter were very rare. The other insects also were carrying pycnosporos almost exclusively. These pycnosporos we believe were obtained for the most part by brushing them off during the normal movements of the insects over diseased and healthy bark, in the same manner in which the birds obtained the pycnosporos (21). The reasons for this belief may be summarized as follows:

1. Ascospores are carried away by the wind upon being expelled from the perithecia (2 and 20).
2. Pycnosporos are washed down the trunks of trees in great numbers by the rains, even during the winter months, while ascospores are not washed down (18).
3. Viable pycnosporos can be obtained in abundance from healthy bark below lesions (51a).
4. We do not believe that the pycnosporos were obtained directly from spore horns, because these become hard when dry and spores are not easily brushed from them. This conclusion is substantiated by the fact that only one of the nine insects which had been permitted to run over spore horn material in the insectary yielded positive results.

There is another possible source for some of the pycnosporos carried. It is known that pycnosporos are washed into the soil around the bases of infected trees, and these have been found to remain viable for a period of two to thirteen days of dry weather (19). It is quite likely that some of the insects, especially the ants, may have obtained considerable numbers of pycnosporos from this source.

All told, the insects have very much more opportunity of obtaining pycnospores than ascospores, and it is not surprising that only a very few of the colonies of the chestnut blight fungus developing in the cultures originated from ascospores (17).

MICROSCOPIC EXAMINATION OF CENTRIFUGED SEDIMENTS.

It has already been stated that, beginning with insect No. 34, the original wash water of those insects yielding positive results was centrifuged and given a thorough microscopic examination. The sediment had been concentrated in a very small quantity of water, and the entire sediment was generally examined.

The purpose of the examination was primarily to ascertain whether the spores of *Endothia parasitica* carried were pycnospores or ascospores, this to serve as a check on the observations based on the rapidity of development of the colonies in cultures. It was possible to find pycnospores in the sediment from every insect which had yielded positive results in the cultures. Where these results were high, pycnospores were found very easily, but where the cultures indicated that only a few spores of the blight fungus were carried, they were located with greater difficulty, but could always be found after a reasonable search. The results of these examinations are presented in Table IV. It should be stated that the sediments were free from dirt particles, and that the pycnospores were therefore much easier to find than in the sediments from the birds (21), for a considerable amount of dirt was added to the bird sediments as a result of scrubbing the feet, bill, tail, and wing feathers.

Ascospores were found to be present in the sediments from only five insects, three of which were *Leptostylus macula*. It would seem reasonable to suppose that this insect would carry a considerable number of ascospores on account of its habit of eating the pustules, but such was not the case, for the number of ascospores found in the sediments was only a small fraction of the number of pycnospores present. A probable explanation

is that ascospores are not as sticky as pycnospores, and would therefore not adhere so well to the body of the beetle. It is possible that the insects would have carried a larger number of ascospores had they been taken just after a rain, for four of the twelve insects which had run over active perithecia in the laboratory and insectary yielded positive results. This possibility, however, will appear less likely when we reason by analogy with the results obtained from the birds (21), for not a single ascospore was found in the sediments from the 19 birds yielding positive results, although many of them had been shot just after rains.

TABLE IV.
RESULTS OF MICROSCOPIC EXAMINATION OF CENTRIFUGED SEDIMENTS.

Insect numbers.	No. of spores of blight fungus carried as shown by cultures.	Kind of spores as shown by microscopic examination of sediments.
1-33	.....	Sediment not retained.
34-35	0	Examination not necessary.
36	249	Pycnospores present; no ascospores.
44	145,340	Pycnospores very abundant; 9 ascospores.
45	6,715	Pycnospores abundant; 3 ascospores.
46	0	Examination not necessary.
47	168	Pycnospores present; no ascospores.
48	100	Pycnospores present; no ascospores.
49-50	0	Examination not necessary.
51	462	Pycnospores present; no ascospores.
52	0	Examination not necessary.
53	151	Pycnospores present; no ascospores.
54	4,792	Pycnospores easily found; no ascospores.
55-62	0	Examination not necessary.
63	200	Pycnospores present; no ascospores.
64	8,538	Pycnospores abundant; 2 ascospores.
65	100	Pycnospores present; no ascospores.
66	1,098	Pycnospores present; no ascospores.
67	100	Pycnospores present; no ascospores.
68	500	Pycnospores present; 1 ascospore.
69-70	0	Examination not necessary.
71	840	Pycnospores present; 2 ascospores.
72-74	0	Examination not necessary.
75	300	Pycnospores present; no ascospores.

SPORES OF OTHER FUNGI CARRIED BY THE INSECTS.

The results obtained in the cultures show that 10 of the 19 insects brought in from the field and yielding positive results carried a larger number of spores of the blight fungus than of all other fungi combined, and three of these (Nos. 22, 44, and 48) were not carrying any other fungous spores. In addition, insect No. 30, which yielded the highest positive results obtained (Fig. 3), gave almost pure cultures of the chestnut blight fungus.

The number of species of fungi other than *Endothia parasitica* represented in the cultures varied from 0 to 7 per insect, and those which appeared most frequently were species of *Penicillium* and *Cladosporium*. Little attempt was made to identify those species less frequently met with, especially if they did not fruit in culture.

As was the case in the work on the birds, the microscopic examination of the centrifuged sediments revealed the fact that a larger number of species of fungi was carried by at least some insects than was indicated in the cultures. The determination of the number of species carried was based upon the cultures and on the microscopic examination of the centrifuged sediments. In the latter the size, form, septation, and coloration of the spores were taken into consideration. One form in particular was frequently found in the sediments, which never appeared in the cultures, probably on account of its slow growth. This was a species of *Coryneum*. It is our opinion that the number of fungous spores carried was very likely greater in every case than was shown by the cultures (Table I).

The fungous spores, other than those of the blight fungus, found in the sediment from insects Nos. 44 and 64 are represented in Figs. 4-24. In the sediment from the latter insect, 10 different kinds of spores were found, while only 2 species of fungi other than the blight fungus appeared in the cultures. In the former the numbers were 7 and 0 respectively.

SUMMARY AND CONCLUSIONS.

1. Each insect tested was placed in a flask containing 100 cc. of sterile water, kept there for at least several hours, small quantities of the water plated out in dilution plates, and the wash water centrifuged in case positive results were obtained.

2. Tests were made of 21 ants used in certain laboratory and insectary experiments in which they had been permitted to run over chestnut bark bearing spore horns or active perithecial pustules of the chestnut blight fungus, *Endothia parasitica*.

3. Five of these 21 ants were found to be carrying spores of the chestnut blight fungus.

4. Tests were also made of 52 insects and 2 spiders brought in from the field. All but three of these were picked directly from the chestnut blight cankers.

5. Both of the spiders yielded negative results, while 19 of the 52 insects from the field were found to be carrying spores of *Endothia parasitica*.

6. Positive results were obtained from insects in the orders Hemiptera, Coleoptera, Diptera, and Hymenoptera. The only other order of insects represented was the Lepidoptera, of which only two individuals were tested, both with negative results.

7. The number of viable spores of the blight fungus carried varied from 74 to 336,960 per insect.

8. The cultures from three insects contained no fungous colonies except those of *Endothia parasitica*.

9. Each of the eight individuals tested of *Leptostylus macula*, one of the beetles which feeds on pustules of the blight fungus, yielded positive results.

10. The three highest positive results obtained, 336,960, 145,340 and 8,538, were from *Leptostylus macula*.

11. It was demonstrated that the spores of the blight fungus were easily shaken from the body of this beetle by its own movements.

12. From the rate of development of the colonies of *Endothia parasitica* in cultures, it was determined that the insects from the field were carrying pycnospores almost exclusively.

13. A microscopic examination of the centrifuged sediments showed a very few ascospores, and these from only five insects. Pycnospores were present in the sediment from every insect yielding positive results.

14. The insects tested, even *Leptostylus macula*, which eats the pustules, were therefore carrying pycnospores almost exclusively.

15. Most of the pycnospores were probably brushed off from normal or diseased bark, or both, by the movements of the insects over these surfaces. Some were probably obtained while eating the pustules, and some may have been obtained from the soil around the bases of diseased trees.

16. Most of the insects were also carrying spores of fungi other than *Endothia parasitica*. The number of species of other fungi varied from 0 to 7 in the cultures, but was shown by microscopic examination of the centrifuged sediments to be greater in at least some cases.

17. In proportion to size, insects may carry a greater number of spores of the blight fungus than birds.

18. We are led to the conclusion that some insects carry a large number of spores of the blight fungus, and that they are important agents in the local dissemination of this disease. This is especially true of the beetle, *Leptostylus macula*.

LITERATURE CITED.

1. Allard, H. A. The mosaic disease of tobacco. Bul. U. S. Dept. Agr. 40: 1-33. 1914.
2. Anderson, P. J. and Babcock, D. C. Field studies on the dissemination and growth of the chestnut blight fungus. Bul. Pa. Chestnut Tree Blight Commission 3: 1-45. 1913.
3. Bary, A. de. Comparative morphology and biology of the fungi, mycetozoa, and bacteria. Translated by H. E. F. Garnsey; revised by I. B. Balfour. 525 pp. 1887. The Clarendon Press, Oxford.
4. Berlese, Amedeo. Rapporti fra la vite ed i Saccaromiceti. Ricerche sui mezzi di trasporto dei fermenti alcoolici. Rivista di Patologia Vegetale 5: 295-340. 1897. Reviewed by Giglioli, I. Insects and yeasts. Nature 56: 575-577. 1897.

5. Brenner, W. Die Schwarzfäule des Kohls. Centrbl. f. Bakt., 2 Abt. 12: 725-735. 1904.
6. Burrill, T. J. Bitter rot of apples. Bul. Ill. Agr. Exp. Sta. 118: 555-608. 1907.
7. Clinton, G. P. Apple rots in Illinois. Bul. Ill. Agr. Exp. Sta. 69: 189-224. 1902.
8. Cobb, N. A. Fungus maladies of the sugar cane. Bul. Hawaiian Sugar Planters' Association, Div. Path. and Physiol. 5: 1-254. 1906.
9. Craighead, F. C. Insects contributing to the control of the chestnut blight disease. Science, N. S. 36: 825. 1912.
10. Falck, R. Die Sporenverbreitung bei den Basidiomyceten und der biologische Wert der Basidie. Cohns Beitr. d. Pflanzen 9: 1-82. 1904.
11. Fulton, H. R. Recent notes on the chestnut bark disease. Rept. Pa. Chestnut Blight Conference, Harrisburg: 48-56. 1912.
12. Fulton, T. W. The dispersion of the spores of fungi by the agency of insects, with special reference to the Phalloidei. Ann. Bot. 3: 207-238. 1889.
13. Gain, E. Sur la contagiosité de la maladie de l'ergot chez les Graminées fourragères. Compt. Rend. Herdomadaires des Séances de la Société de Biologie 72: 189-191. 1912.
14. Grossenbacher, J. G. and Dugger, B. M. A contribution to the life history, parasitism, and biology of *Botryosphaeria Ribis*. Tech. Bul. N. Y. Agr. Exp. Sta. 18: 113-190. 1911.
15. Heald, F. D. The bud rot of carnations. Bul. Nebr. Agr. Exp. Sta. 103: 1-24. 1908.
16. Heald, F. D. Pathological investigations. Rept. Pa. Chestnut Tree Blight Commission, July 1 to Dec. 31, 1912: 40-42. Harrisburg, Pa. 1913.
17. Heald, F. D. A method of determining in analytic work whether colonies of the chestnut blight fungus originate from pycnospores or ascospores. Mycologia 5: 274-277. 1913.
18. Heald, F. D. and Gardner, M. W. The relative prevalence of pycnospores and ascospores of the chestnut blight fungus during the winter. Phytopathology 3: 296-305. 1913. Preliminary note in Science, N. S. 37: 916-917. 1913.

19. Heald, F. D. and Gardner, M. W. Longevity of pycnospores of the chestnut-blight fungus in soil. *Journ. Agr. Research* 2: 67-75. 1914.
20. Heald, F. D., Gardner, M. W., and Studhalter, R. A. Air and wind dissemination of the chestnut blight fungus. *Journ. Agr. Research* 3: 493-526. 1915.
21. Heald, F. D. and Studhalter, R. A. Birds as carriers of the chestnut blight fungus. *Journ. Agr. Research* 2: 405-422. 1914. Preliminary note in *Science* N. S. 38: 278-280, 1913.
22. Hodson, E. R. Extent and importance of the chestnut bark disease. Unnumbered Cir. U. S. Dept. Agr., Forest Service: 1-8. 1908.
23. Istvánffy, G. Ar Ithyphallus gomba és Coepophagus atka egyiittes föllépéséről hazánkban. *Mathematikai és természettudományi értesítő* 21: 157-176. 1903.
24. Istvánffy, G. Ket új szőlőkárosító hazánkban. A. m. k. szőlészeti kísérleti állomás és ampelologiai intézet közleményei 3: 1-54. 1903.
25. Horne, W. T., Parker, W. B., and Daines, L. L. The method of spreading of the olive knot disease. *Pythopathology* 2: 101-105. 1912. Abstract in *Phytopathology* 2: 96. 1912.
26. Johnson, E. C. Floret sterility of wheats in the southwest. *Phytopathology* 1: 18-27. 1911.
27. Johnston, J. R. The history and cause of the coconut bud-rot. *Bul. U. S. Dept. Agr., Bur. Plant Ind.* 228: 1-175. 1912.
28. Jones, D. H. Bacterial blight of apple, pear, and quince trees. *Bul. Ontario Dept. Agr.* 176: 1-64. 1909.
29. Jones, D. H. *Scolytus rugulosus* as an agent in the spread of bacterial blight in pear trees. *Phytopathology* 1: 155-158. 1911.
30. Jones, L. R., Giddings, N. J., and Lutman, B. F. Investigations of the potato fungus *Phytophthora infestans*. *Bul. U. S. Dept. Agr., Bur. Plant Ind.* 245: 1-100. 1912.
31. Klebahn, H. Die wirtswechselden Rostpilze. 447 pp. Gebrüder Borntraeger, Berlin. 1904.
32. Ludwig, F. *Lehrbuch der niederen Kryptogamen*. 672 pp. Ferd. Enke, Stuttgart. 1892.

33. Magnus, P. Zwei neue Uridineen. *Ber. d. deutsch. Bot. Gesell.* 9: 91-100. 1891.
34. Masee, G. Diseases of cultivated plants and trees. 602 pp. The MacMillan Co., New York. 1910.
35. Mercier, L. Sur le rôle des insectes comme agents de propagation de l'ergot des Graminées. *Compt. Rend. Soc. de Biol., Paris* 70: 300-302. 1911.
36. Metcalf, Haven. The chestnut bark disease. *Yearbook U. S. Dept. Agr.* 1912: 363-372. 1913.
37. Metcalf, Haven and Collins, J. Franklin. The control of the chestnut bark disease. *Farmers' Bul. U. S. Dept. Agr.* 467: 1-24. 1911.
38. Murrill, W. A. A serious chestnut disease. *Journ. N. Y. Bot. Gard.* 7: 143-153. 1906.
39. Rankin, W. H. How further research may increase the efficiency of the control of the chestnut bark disease. *Rept. Pa. Chestnut Blight Conference, Harrisburg*: 46-48. 1912.
40. Ráthay, E. and Haas, B. Ueber *Phallus impudicus* (L.) und einige *Coprinus*-Arten. *Sitzungsber. d. math.-nat. Classe d. kaiserl. Akad. d. Wiss., Wien* 87: 18-44. 1883.
41. Russell, H. L. A bacterial rot of cabbage and allied plants. *Bul. Wis. Agr. Exp. Sta.* 65: 1-39. 1898.
42. Schlechtendal, D. F. L. v. Eine neue Phalloidee, nebst Bemerkungen über die ganze Familie derselben. *Linnea* 15: 101-194. 1861-2.
43. Smith, Erwin F. *Bacillus tracheiphilus* sp. nov., die Ursache des Verwelkens verschiedener Cucurbitaceen. *Centrbl. f. Bakt., 2 Abt.* 1: 364-373. 1895.
44. Smith, Erwin F. A bacterial disease of the tomato, eggplant, and Irish potato (*Bacillus solanacearum*). *Bul. U. S. Dept. Agr., Div. Veg. Phys. and Path.* 12: 1-28. 1896.
45. Smith, Erwin F. *Pseudomonas campestris* (Pammel). The cause of a brown rot in cruciferous plants. *Centrbl. f. Bakt., 2 Abt.* 3: 408-415. 1897.
46. Smith, Erwin F. Bacteria in relation to plant diseases 2: 368 pp. Carnegie Inst. of Washington, 1911.
47. Stäger, R. Infektionsversuche mit Gramineen-bewohnenden Claviceps-Arten. *Bot. Zeit.* 61: 111-158. 1903.

48. Stäger, R. Neue Beobachtungen über das Mutterkorn. Centrbl. f. Bakt., 2 Abt. 27: 67-73. 1910.
49. Stewart, V. B. The fire blight disease in nursery stock. Bul. N. Y. (Cornell) Agr. Exp. Sta. 329: 313-372. 1913.
50. Stewart, V. B. The importance of the tarnished plant bug in the dissemination of fire blight in nursery stock. Phytopathology 3: 273-276. 1913.
51. Studhalter, R. A. Insects as carriers of the chestnut blight fungus. Phytopathology 4: 52. 1914.
- 51a. Studhalter, R. A., and Heald, F. D. The persistence of viable pycnospores of the chestnut blight fungus on normal bark below lesions. Am. Journ. Bot. 2: 162-168. 1915.
52. Sturgis, W. C. On some aspects of vegetable pathology and the conditions which influence the dissemination of plant diseases. Bot. Gaz. 25: 187-194. 1898.
53. Waite, M. B. Results from recent investigations in pear blight. Proc. Amer. Assoc. Adv. Sci., 40th Meeting, Washington, 1891: 315. 1892.
54. Waite, M. B. The cause and prevention of pear blight. Yearbook U. S. Dept. Agr. 1895: 295-300. 1896.
55. Webber, H. J. Sooty mold of the orange and its treatment. Bul. U. S. Dept. Agr., Div. Veg. Phys. and Path. 13: 1-44. 1897.

EXPLANATION OF PLATES.

PLATE I.

Fig. 1. *Leptostylus macula* Say, one of the beetles which feeds on pustules of the chestnut blight fungus.

Fig. 2. Piece of chestnut bark showing pustules of the chestnut blight fungus eaten out by *Leptostylus macula*.

PLATE II.

Fig. 3. Series of cultures 6 days old obtained in the test of insect No. 30, *Leptostylus macula*. The upper Petri dish contained 1-100 of the water in which the insect was washed; the plate at the lower left contained 1-480; and the one at the lower right, 1-960. The last mentioned plate contained only one fungous colony other than *Endothia parasitica*; the other two represented pure cultures of the chestnut blight fungus.

PLATE III.

Figs. 4-12. Spores of fungi other than *Endothia parasitica* found in the centrifuged sediment from insect No. 44, *Leptostylus macula*.

Fig. 4, dark brown; Fig. 5, hyaline; Fig. 6, light brown; Fig. 7, light brown; Fig. 8, hyaline; Fig. 9, dark brown; Fig. 10, hyaline; Fig. 11, dark brown; Fig. 12, pale smoky.

Figs. 13-24. Spores of fungi other than *Endothia parasitica* found in the centrifuged sediment from insect No. 64, *Leptostylus macula*.

Fig. 13, light brown; Fig. 14, dark brown; Fig. 15, dark brown; Fig. 16, hyaline; Fig. 17, dark smoky; Fig. 18, dark smoky; Fig. 19, light brown; Fig. 20, hyaline; Fig. 21, light smoky; Fig. 22, light brown; Fig. 23, light smoky; Fig. 24, dark brown.

Commonwealth of Pennsylvania.

DEPARTMENT OF FORESTRY

BULLETIN NO. 13.

REPORT

OF THE

Chief Forest Fire Warden

FOR

THE YEAR 1915



Issued by Direction of the Commissioner of Forestry

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1916



PENNSYLVANIA DEPARTMENT OF FORESTRY

ROBERT S. CONKLIN,
Commissioner of Forestry

IRVIN C. WILLIAMS,
Deputy Commissioner of Forestry



BUREAU OF FOREST PROTECTION

GEORGE H. WIRT,
Chief Forest Fire Warden

HOWARD W. SIGGINS,
Clerk



LETTER OF TRANSMITTAL

Hon. ROBERT S. CONKLIN,
Commissioner of Forestry.

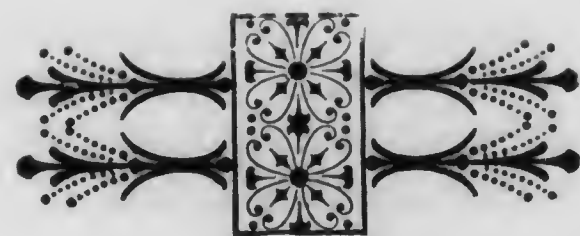
Dear Sir:

In accordance with paragraph (e), Section 102, Act June 3, 1915, there is transmitted herewith the first report of the Chief Forest Fire Warden, including a review of forest fire legislation in Pennsylvania by Hon. I. C. Williams, various tables relating to forest fires in 1915, a roster of forest fire wardens, and several photographs deemed valuable to a satisfactory presentation of the subject matter. It is hoped that a wide distribution of this information in bulletin form will be the cause of a more general realization of the tremendous loss suffered by the people of this State because of forest fires. Also, that it will be the beginning of a more hearty co-operation among officials, woodland owners, timber users, and those who enter the woods for business or pleasure, for the prevention and extinction of forest fires.

Yours respectfully,

GEORGE H. WIRT,
Chief Forest Fire Warden.

Harrisburg, January 27, 1916.



INTRODUCTION

There is no longer any question as to the value of forests and as to the necessity for their protection and economic management. The benefits of well cared for forests are well recognized; yet when we observe the every day attitude toward forests, we find that it does not correspond with what is believed to be the attitude which every citizen should have, be he a timber owner or not. In caring for forests, as in the management of other property, the foundation principle at stake is the matter of protection and undoubtedly the one factor against which we have to work most is the forest fire. A timberland owner may practice the most reasonable methods of forestry, including natural and artificial regeneration, all classes of improvement cuttings, a careful harvesting of the crop, and yet if his property be subject to damage from fire, and he does not provide for protection therefrom, all of the other things which he does may be lost. Any business man who would conduct a business in a way not to provide reasonable protection for his investment, and not carry reasonable insurance, would be called an unsafe business man. In fact, few people would hesitate to call him a fool.

The fact that forests influence the flow of streams beneficially is no longer disputed. The greatest factor in this influence is the humus which makes up the forest floor. Humus is the natural reservoir which Nature has provided upon our high lands and slopes for the retention of precipitation, for its filtration, and for making possible the gradual percolation of moisture into the subsoil. Once this humus is destroyed, all of Nature's provisions are unbalanced and even though our high lands were covered with a splendid growth of trees, without the humus underneath them, little or no beneficial influence upon streams would be felt. It is forest fire which destroys this humus.

This condition of affairs brings out the fact that there is another party in the case aside from the individual owner of timber land. Under conditions such as we have in Pennsylvania, there are many timber owners who simply could not provide adequate protection from forest fires without almost financial ruin. In other words, the investment which they now have in forest property will not bear

the additional outlay necessary to protect the investment satisfactorily. On the other hand, the individual owner, in nine cases out of ten, is not the only one who suffers because of the destruction of the humus. It is the community at large. Consequently this community has an interest in seeing that fires are suppressed. It is reasonable, therefore, to ask that help be given to the individual owner in protecting his timber land from fire.

Even antedating the beginning of our Commonwealth, there have been laws against the setting of forest fires, but practically no attention was paid to them until it gradually was not uncommon to find people who believed that forest fires were a part of the natural order of things and that belief still remains. In more recent days, since the development of the forestry idea in Pennsylvania, efforts have been made to solve the forest fire problem and we are free to admit that it is not yet solved. The greatest difficulty in the way is the general ignorance and indifference of our people with reference to forest fires. If the people could only realize that every year we are permitting the burning up of millions of dollars worth of property, and bringing upon ourselves future trouble as an indirect result of these fires, I believe that some change in the general attitude would result. If, in any one of our towns and cities, there were a fire which would destroy, in a short period of time, a million dollars worth of property, there would not be a newspaper in the country which would not deplore the tremendous loss. The chances are that an investigation would be made into the management of the fire department and everybody would be aroused to the necessity for preventing such enormous loss. Again, if all of the indirect results which come from forest fires, namely, loss of life, loss of property other than timber, inconvenience because of lack of water and the consequent sickness and death, loss of wages, loss in taxes, depriving the citizens of game and fish for a number of years, placing the community in the midst of desolation, and so forth, could be concentrated, the whole State, and probably other States, would open up its sympathetic heart and try to alleviate the loss. Probably some effort would be made to prevent a similar calamity in that particular community; but it is a large question as to whether or not any general preventive measures would be taken to prevent a similar calamity in other communities.

It is a fact that because of forest fires, there are at least 5,000,000 acres in Pennsylvania kept in a non-productive state, and this vast area is constantly on the increase. Some of this land is now in such a condition that it may never be able to produce tree growth.

Much of it, however, is such that tree growth could be restored. With repeated fires and continuing erosion, the absolutely barren land is on the increase. At a minimum figure, the citizens of this Commonwealth are losing \$20,000,000 a year because of the non-production of timber that might be growing upon these areas. The loss from the indirect effects of such an area of desolation in floods, destruction of agricultural lands, ill health, loss of life, and loss of industries other than lumbering, no one can figure out, but it must be close to 20 or 30 million dollars. Truly, we are extravagant people, burning up millions of dollars and sitting supinely by and watching the smoke.

While it is true that it is the duty of the Commonwealth to take care of its own interests, both as a timber land owner, and because of the benefits of forests to society, it must be distinctly understood that the Commonwealth is made up of the individuals who live within its borders. The results of forest fires touch the life of every individual in the Commonwealth. It is the duty, therefore, of every individual to do his share, not simply in the suppression of forest fires but in their prevention. The attitude of the Commonwealth from this time forward must be prevention and not merely that of extinction.

"Safety First," efficiency, and conservation, are three terms that are upon the lips of the people upon all occasions. They are easily understood and appreciated. They are being applied to all phases of work, private and governmental. Efficiency commissions and the conserving of material and human wealth by national and state governments are in vogue. Although this condition exists, the people are not yet entirely awake to the foundation principle of these three ideas. The best conservation of effort, time, money, resources, health, and life is expressed in the idea of the prevention of waste. The remedying of ills and the restoration of things which can be restored are noble actions, but many ills cannot be remedied and many resources cannot be restored. The prevention of accidents and of unsatisfactory conditions is wiser, cheaper, and more far reaching than amelioration. The old saws "An ounce of prevention is worth a pound of cure" and "A stitch in time saves nine" are just as true today as they were when first uttered. Efficiency implies "safety first" and conservation.

Forestry is one branch of conservation, and the protection of forests from fire is a part of forestry. Safety first in forest management is just as wise and just as important as in manufacturing or in railroading. It is, in fact, more so. Industries could continue with-

out the safety first idea being developed very far, but forestry is impossible without protection from fire. Any system of forestry is doomed, and is the limit of inefficiency, if forest fires are not suppressed.

It is a recognized principle that the Commonwealth has an important interest in the forests within its borders. A peculiar relation exists which, under our form of government, is rather difficult to handle, but in the majority of cases attempts to meet the problem have resulted in the purchase or retention of certain lands to be held by the State for forest management of one kind or another. Other efforts have been education, reduction of taxes, distribution of seeds and seedlings, and fire extinction. Usually the last effort has been the weakest one.

In Pennsylvania, more recent agitation for a proper care of forests dates from 1877, and an active State policy dates from 1893. The danger and results from forest fires have been recognized all the time but the idea that the prevention of fires should take the lead of all other moves seems even yet to be foreign to the majority of our people.

There are approximately 8,000,000 acres of so-called forest land in Pennsylvania. All of it is exposed to the curse of fire. An average of 500,000 acres burns over each year. Most of it is burned over once every ten years. No system of forest management can flourish under such a condition. In the face of this fact, no Commonwealth can provide for future welfare. The direct loss from these fires is close to \$1,000,000 a year, and what the indirect loss is, no one can calculate. No people can forever suffer such a useless loss, nor is it sensible to expect them to. The mere fact that they do not realize their loss is no excuse for the State's permitting the condition to exist.

As a safety measure the Legislature has permitted the expenditure of \$2,300,000 to purchase 1,000,000 acres of land and an additional inadequate sum of \$1,250,000 for the development of this land, more than half of which will require an expenditure of \$25 an acre to get it into productive shape. It will limit the purchase price per acre to \$10 and expect the Department of Forestry to protect and develop its own forests with an additional \$1.25 per acre to date, and a biennial expenditure of about 40 cents per acre. Even if adequately supported, the State's 1,000,000 acres in good condition will not offset the harm of the other 7,000,000 in desolate condition. It authorizes the planting of seedlings but fails to prevent the burning up of millions of little trees for every thousand planted. It inade-

quately provides for what the State itself already owns. It is satisfied to appropriate \$250,000 toward an experiment to eliminate the chestnut blight, but sees fit to appropriate only \$45,000 for two years to protect the total area of 8,000,000 acres in accordance with a plan which is not an experiment but which has proved its efficiency in other States and within our own State Forests. Surely it is cheaper at \$100,000 or even \$200,000 per year to protect all the forests from fire than it is to appropriate \$45,000 for two years and permit the people and the State lose many millions of dollars each year. It makes one feel like crying "How long, O Lord, how long must we wait to apply the law of safety first to forests, of efficiency in forest protection, of prevention rather than extinction." The subject is not a political one; it is vital to the very existence of the Commonwealth.

Pennsylvania is undoubtedly in the lead of all other States of the Union in general forestry work, but she has let others walk all around her in the matter of fire protection.

Since June 1, 1909, the appropriations for forest fires have been as follows:

Period covered.	Amount asked.	Approved.		Amount used.
		Date.	Amount.	
June 1, 1909 to June 1, 1911,	\$80,000 00	May 13, 1909	\$50,000 00	\$49,999 78
Deficiency to June 1, 1911,	13,000 00	May 1, 1911	13,000 00	12,999 30
Deficiency to June 1, 1911,	25,000 00	June 14, 1911	15,000 00	14,998 13
Deficiency to June 1, 1911,	3,500 00	July 16, 1913	2,798 42	2,798 43
				\$80,795 64
June 1, 1911 to June 1, 1913,	60,000 00	June 14, 1911	50,000 00	30,924 75
June 1, 1913 to June 1, 1915,	50,000 00	July 16, 1913	50,000 00	49,999 57
Deficiency to June 1, 1915,	25,000 00	June 16, 1915	17,500 00	*15,442 41
				\$65,441 98
June 1, 1915 to June 1, 1917,	150,000 00	June 16, 1915	45,000 00	.....

*All bills not yet paid.

This shows a total appropriation used for forest fires from June 1, 1909, to June 1, 1915, amounting to \$177,162.37, or an average of \$29,527.00 per year. The average for the two years, June 1, 1909 to June 1, 1911, was \$40,397.82 which is almost as much as has been set aside for the reorganization of an efficient system of wardens and for fire prevention and extinction during two years. Surely the organization must be at the highest pitch of efficiency at once, which is impossible, or the forest fire seasons during the next two years must be extremely unfavorable for fires, which is not probable, or the legislature must be asked for a large deficiency, which is certain and which is poor business.

The following table giving latest figures available, is a very interesting one for comparison:

State.	Forest area protected.	Appropriation for 1913.	Average per acre to be protected.
Maine,	9,500,000	\$67,900	\$0.007
New Hampshire,	4,000,000	16,000	.004
Vermont,	3,000,000	3,500	.001
Massachusetts,	2,500,000	25,000	.010
Connecticut,	1,500,000	2,000	.001
New York,	7,200,000	75,000	.010
Pennsylvania,	7,500,000	*25,000	.003
New Jersey,	1,800,000	15,000	.008
Maryland,	2,000,000	4,000	.002
Kentucky,	15,000,000	5,000	.0003
Wisconsin,	15,000,000	35,000	.002
Minnesota,	20,000,000	75,000	.004
Montana,	1,700,000	3,500	.002
Idaho,	4,000,000	15,000	.004
Washington,	15,000,000	33,000	.003
Oregon,	15,000,000	30,000	.002

*In 1915, Pennsylvania appropriated \$45,000 for two years, or \$22,500 for one year.

Most of the States noted obtain additional sums for fire prevention from timber owners' organizations and from the National Government.

Both Massachusetts and New York appropriate a cent per acre for fire protection. The acreage per fire in Massachusetts in 1914 (the latest figures) was 12 $\frac{1}{4}$ acres. In New York, the average number of acres per fire in 1914 was 33 $\frac{1}{2}$, while in Pennsylvania in 1913 it was 508; in 1914, 305; and in 1915, 300. This in itself is a tremendous indictment against the people themselves and against the fire protective system which they have provided in particular. An effective organization is possible and Pennsylvania ought to have it.

In order to show the progress in forest fire legislation in our State, I. C. Williams, Esq., has prepared a review of such laws. It will be noted that a number of experiments have been tried and found wanting. At last an organization has been provided for that promises satisfactory results.

A REVIEW OF FOREST FIRE LEGISLATION IN PENNSYLVANIA.

By I. C. WILLIAMS, ESQ., Deputy Commissioner of Forestry.

The Province of Pennsylvania and subsequently the Commonwealth of Pennsylvania have been engaged for a period of over two hundred and twenty-five years

in an effort to subdue the forest fire evil. The problem has not yet reached a solution.

When King Charles II of England, by letters patent in 1664, granted to his royal Brother James, Duke of York, all of the New Netherlands district, which by him was claimed to include the whole of the South (Delaware) River country and the colonies below, it became necessary to formulate a code of laws for the government thereof. These laws were promulgated at Hemptstead, Long Island, the same year, and were subsequently, in September, 1676, upon petition of the magistrates, extended by Governor Sir Edmund Andros to the Delaware River provinces.

Among the Duke of York's laws thus promulgated and extended is probably the first forest fire law enacted for Pennsylvania; and then enacted not for the saving of the forest, but for the protection of corn grounds and enclosures from conflagrations started within the forest. This portion of his code is as follows:

"If any Person whatsoever shall kindle any fire in the woods or Grounds lying in Common, or in his own Grounds so as the same shall runne into any Corne Grounds or Enclosures of his Neighboures, he shall be Lyable to pay all Damage; of whatsoever Sort and half so much more for a fine; or if not able to pay the Court shall Adjudge the Person guilty of Corporal punishment not exceeding twenty Stripes, or do Service to Expiate the Crime."

In 1682 the grant of Pennsylvania was made to William Penn. At a meeting of the Provincial Assembly, held at Philadelphia, March 10, 1683, there was promulgated the following law relating to forest fires:

"Chap. XCIII. Be it &c., That Whosoever shall presume to sett on fire, any Woods, Lands, or Marshes, in this Province or territories thereof, before the first day of the first moneth yearly; They shall yearly make good all the Damages that shall thereby happen to any of the inhabitants thereof."

This law was subsequently, in 1693, abrogated by the reigning sovereigns of England, William and Mary, but was re-enacted the same year.

The next act of legislation bearing upon the subject is the act of the Provincial Assembly passed November 27, 1700. This statute was considered by the Queen in Council February 7, 1705-6, and not being acted upon, became a law in accordance with the provisions of the Charter to the Proprietary. The text of the act in full is as follows:

"An act against unseasonable firing of woods.

"For the prevention of dangers and damages that may ensue upon firing of woods at unseasonable times of the year:

"Be it enacted by the Proprietary and Governor, by and with the advice and consent of the freemen of this Province and Territories in General Assembly met, and by the authority of the same, That whosoever shall presume to set on fire any woods, lands or marshes in this province or territories, before the first day of the First month yearly, or after the first day of the Third month, shall make good all damages that shall thereby happen to any of the inhabitants thereof."

It will be seen that the firing of the woods at seasonable times, viz., during March and April of each year, was looked upon as a matter of course, something that was to be expected, and probably, from long practice, regarded as necessary in the work of clearing and settlement.

That the practice of burning the forests soon became pernicious and resulted in the destruction of fences, crops and buildings in communities which were being rapidly settled may be believed, because on March 27, 1712-13, an amendment to this act was passed, giving these damages and this destruction of property as the reason for its passage. The text of the amending section is as follows:

"And be it further enacted, That if any person or persons do at any time hereafter set on fire any woods, lands, marshes, or cripples though within the time limited by a law of this province entitled 'An act against unseasonable firing the woods,' within one mile of any fences or buildings, without giving notice to the possessor of such improvements at least twenty-four hours before he do so, he or they shall pay all damages that shall thereby happen to any such buildings or fences."

The next act dealing with the forest fire question was passed March 29, 1735. This law distinctly shows a marked change in sentiment with respect to the expediency of setting such fires. Up to this time firing the forest was not looked upon as an offense punishable criminally, except in the Duke of York's first statute. Previous legislation was directed toward the recovery of compensatory damages. The act of 1735 contains a penal provision, but this was applicable to servants and slaves only. We see here the distinction preserved to this time between the land owner who was supposed to set fires for beneficial reasons and without malice, and similar acts of servants and slaves, who being non-owners, were presumed to act maliciously. The act of 1735 is an interesting piece of legislation and is as follows:

"An act to prevent the damages which may happen by firing of woods.

"Whereas by an act the general assembly of this province passed in the twelfth year of the reign of King William the Third it is enacted that whosoever shall presume to set on fire any woods, lands or marshes in this province or territories before the first day of the first month yearly or after the first day of the third month shall make good all damages that shall thereby happen to any of the inhabitants thereof. And whereas it hath on experience been found that the setting the woods on fire at any time hath proved rather hurtful than beneficial to this province and great losses have happened by occasion of such fires:

"For the prevention thereof:

"Be it enacted by Patrick Gordon, Esquire, Lieutenant-Governor with the King's royal approbation under the Honorable John Penn, Thomas Penn and Richard Penn, Esquires, true and absolute Proprietories of the Province of Pennsylvania and of the counties of Newcastle, Kent and Sussex on Delaware, by and with the advice and consent of the representatives of the freemen of the said Province in General Assembly met, and by the authority of the same, That the act of assembly hereinbefore recited and every clause and article therein be and is hereby repealed to all intents, constructions and purposes whatsoever.

"And be it further enacted by the authority aforesaid, That whosoever shall presume at any time or times hereafter to set on fire or cause to be set on fire any woods, land or marshes whatsoever within this province, so as thereby to occasion any loss, damage or injury to any other person or persons, every such person or persons so offending shall and are hereby declared liable to make satisfaction for the same in any action or actions on the case to be brought by the party or parties grieved in the court of common pleas in the county where the offense was committed.

"Provided always, and be it further enacted by the authority aforesaid, That where the party injured shall not demand above forty shillings for his loss or damage, it shall and may be lawful to and for such person or persons to apply to any justice of the peace of the county where the offense is committed, who is hereby empowered and required by warrant under his hand and seal to cause the party offending to be brought before him or some other justice of the peace of the same county, and if upon examination it shall appear to such justice by the testimony of one or more credible witnesses that the defendant is guilty of the charge exhibited against him, then the said justice shall issue forth his warrant to two or more substantial freeholders of the neighborhood, thereby commanding them in the presence of the defendant (if he will be present) to view the place or thing damaged or inquire into the loss sustained by the plaintiff, and to certify to the said justice upon their oath or affirmation what damage in their judgment the plaintiff hath sustained by occasion of the premises; and that upon return of such certificate to the said justice he is hereby empowered to grant execution for the recovery of the said damages, together with such costs of prosecutions as is usual in the recovery of debts under forty shillings.

"Provided also, That no costs of suits shall be paid to any plaintiff in any suit to be brought for any matter or thing in this act mentioned if the jury who shall try the cause do not assess above forty shillings damages, any law, custom or usage to the contrary in anywise notwithstanding.

"Provided also, That where any offense shall be committed against the tenor of this act by any servant, negro or slave without the direction of his, her or their master or mistress respectively, and such offender be thereof duly convicted by the oath or affirmation of one credible witness before any justice of the peace of the respective counties, such offender or offenders, unless his or her master or mistress will pay the damages sustained with costs of suit, shall be whipped with any number of stripes not exceeding twenty-one on his or her bare back at the direction of the justice before whom the party shall be convicted and further shall be committed to the workhouse of the county where the offense is committed, there to remain until the costs of prosecution shall be paid."

This law recognized no "seasonable" time for setting the forest on fire. It continued unchanged for sixty years. The independence of the colonies had been secured, the national government had been successfully organized, and the promise of uninterrupted industrial success was before the minds of the people. The reduction of the forest land to agricultural purposes was gradually being accomplished. The evil of wilful and negligent firing of the forests was becoming more apparent and more burdensome. Therefore, further to deal with the problem and mould the law to meet the changed conditions, the act of April 18, 1794, was passed, and the probabilities are that the second and third sections of this act are still in force. This act is as follows:

"An act to prevent the damages which may happen by firing of woods.

"Whereas, it has been represented that numbers of persons are in the custom of setting fire to the woods for different purposes, thereby producing an extensive conflagration, injurious to the soil, destructive to the timber, and the infant improvements within the State: Therefore

"Section 1. Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania in General Assembly met, and it is hereby enacted by the authority of the same, That whoever shall at any time hereafter wilfully set on fire, or cause to be set on fire, any woods, lands or marshes whatsoever,

within this Commonwealth, so as thereby to occasion any loss, damage, or injury to any other person or persons, every such person or persons, so offending, and being thereof legally convicted by the oath or affirmation of one or more witnesses, in the county court of quarter sessions where the offense is committed, shall pay a fine not exceeding fifty dollars, and not less than twenty dollars, the one-half of such fine to be paid to the informer, and the other half to the overseer of the poor of the township where the offense is committed, for the use of the poor in the said township.

"Section II. And be it further enacted by the authority aforesaid, That where any persons so offending as thereby to occasion any loss, damage, or injury to any other person or persons, every such person or persons so offending, shall be and hereby are declared liable to make satisfaction for the same, in any action or actions on the case, to be brought by the party or parties grieved, in the court of common pleas of the county in which the offense was committed.

"Section III. And be it further enacted by the authority aforesaid, That where any party is injured, and shall not demand above fifty dollars for his loss or damage, it shall and may be lawful to and for such person or persons to apply to any justice of the peace of the county where the offense is committed, who is hereby empowered and required, by warrant under his hand and seal, to cause the party offending to be brought before him or some other justice of the peace of the same county; and if, upon examination, it shall appear to the justice, by the testimony of one or more credible witness or witnesses, that the defendant is guilty of the charge exhibited against him, then the said justice shall issue his warrant to two or more free-holders of the neighborhood, thereby commanding them, in the presence of the defendant, if he will be present, to view the place or thing damaged, or inquire into the loss sustained by the plaintiff, and to certify to the said justice, upon their oath or affirmation, what damage, in their judgment, the plaintiff hath sustained by the occasion of the premises; and upon the return of such certificate to the said justice, he is hereby empowered to grant execution for the recovery of the said damages, together with the costs of prosecution, as is usual in the recovery of debts under ten pounds: Provided, That if any person or persons shall apprehend him, her, or themselves aggrieved by the determination of any justice of the peace, in consequence of this act, he, she, or they shall have a right to appeal from the judgment of the said justice to the next court of common pleas of the proper county.

"Section IV. And be it further enacted by the authority aforesaid, That where any offense shall be committed against the tenor of this act, by any white or black servant, without the direction of his, her, or their master or mistress, respectively, and such offenders be thereof duly convicted, by the oath or affirmation of one credible witness, such offender or offenders, unless his or her master or mistress will pay the damages sustained, with costs of suit, shall be committed to the gaol of the county, there to be kept to hard labour for three months, and from thence until the cost of prosecution be paid.

"Section V. And be it further enacted by the authority aforesaid, That the act, entitled 'An act to prevent the damages that may happen by firing of woods,' passed the twenty-ninth day of March, one thousand seven hundred and thirty-five, is hereby repealed and made null and void."

Herein the criminal aspect of starting forest fires was further emphasized. What was formerly a crime only when committed by a servant or a slave now became so without distinction of person.

The act of March 29, 1824, was passed to prevent the destruction of woods and timber land by unlawful cutting as well as by fire. The first three sections of this law relate wholly to unlawful cutting, and the penalties to be applied therefor. The title to the act and the fourth section are as follows:

"An act to prevent the destruction of timber, and supplementary to the act entitled, 'An act to prevent the damages which may happen by firing woods,' passed eighteenth of April, seventeen hundred and ninety-four."

* * * * *

"Section 4. And be it further enacted by the authority aforesaid, That whosoever shall wilfully set on fire, or cause to be set on fire, any woods, lands or marshes, whatsoever, within this commonwealth, every such offender or offenders, being thereof legally convicted by the oath or affirmation of one or more witnesses, in the county court of quarter sessions of the peace, where such offense has been committed, shall pay a fine not exceeding five hundred dollars, one-fourth to the informer, and the residue to the overseers or directors of the poor of the township or county, as the case may be, where such offense has been committed, for the use of the poor of such township or county; and shall moreover undergo an imprisonment at hard labor in the jail of the proper county, for any term not exceeding one year."

The fifth section of this act repealed directly the first and fourth sections of the act of April 18, 1794, *supra*.

When the codification of the criminal laws of the Commonwealth was undertaken in the year 1860, the subject of the malicious firing of forests and woodlands was comprehended in the eighth division, relating to offenses against real property. Section 140 of the act of March 31, 1860, commonly called the "Criminal Code," reduces the penalty fixed by the act of 1824, from five hundred dollars to one hundred dollars, leaving the term of imprisonment at twelve months, as in the former act. This law, however, does not cover the case of negligently allowing the escape of fire from one's own lands to the lands of another. While this offense could no doubt have been comprehended under the general law of negligence in an action for damages, yet subsequent legislation made this a misdemeanor and fixed a penalty therefor.

Until the year 1867 no special laws relating to this subject had been enacted; but at this session was passed the act of March 26, 1867, fixing penalties for setting forest fires in the counties of Clearfield, Fulton and Elk. It also extended the statute of limitations so that prosecutions might be brought within six years.

This is the first statute which offers a reward as such, for the apprehension and conviction of the offender. It directs the county commissioners to pay to the prosecutor in every such case the sum of fifty dollars and to the district attorney who secure the conviction the sum of twenty dollars.

Following the act of 1867 was another special act approved the 9th day of April, 1869, relating only to Union county. By the act of June 2, 1870, the provisions of this law were extended to the counties of Schuylkill, Lehigh, Berks, Lycoming, Centre, Snyder and Luzerne, from which Lycoming was subsequently excepted by act of May 19, 1871. The penalties imposed are fines ranging from fifty to five hundred dollars and imprisonment from one month to twelve months, within the discretion of the court. It continues the idea of reward contained in the special act of 1867 by providing for the payment to the informer of one-half of the fine imposed.

The preamble to this act of 1869 is interesting from the fact that it offers as a reason for the passage of the act some of the ideas which the forestry administration of the State has been urging upon the people from the very inception of its work. The reports of the Division of Forestry up to 1897 amply prove this statement. The preamble is as follows:

"Whereas, There being certain mountain and other wild lands in the county of Union which are fired from year to year, thereby destroying the young timber and causing the land to be worthless for the purpose of timber: And whereas, Should such young timber not be destroyed it would add to the value of the land, in the course of twenty years, from fifty to one hundred dollars per acre, thus increasing the wealth of the county thousands of dollars, therefore, &c."

The legislative assembly of 1879, in considering the matter of forest fires, followed that of ten years earlier in writing into the general statutory law of the State the provision for paying a reward for the arrest and conviction of such offenders. By the act of 11th June, 1879, the penalty of one hundred dollars fixed by the act of 1860 was raised to three hundred dollars, with a term of imprisonment as formerly. The county commissioners were therein directed to pay to the prosecutor, after conviction of the defendant, the sum of fifty dollars as a reward.

This continued to be the state of the law until the passage of the more comprehensive act of June 1, 1887, providing for the encouragement of forest culture and imposing penalties for the injury and destruction of forests. In addition to the offenses defined in former laws there are added here those of carrying over or into any forest any lighted candle, lamp, or other fire without having the same inclosed in a lantern or other closed vessel; the discharging of fireworks on forest land or among the trees thereon; and carelessly or wilfully starting fires on one's own land so as to communicate fire to such forest or timber lands belonging to others. The penalty was inadequately fixed at fifty dollars for each offense, but was increased to one hundred dollars by an amendment approved May 14, 1891. In case of the refusal or inability to pay a fine, the defendant is to be committed to the county prison for a period of one day for each dollar of penalty imposed.

This act contains an innovation in forestry law, and one withal that is wholly commendable, being in line with the determination of later legislatures to have small causes finally disposed of in the justice's office. It gives to justices of the peace the power of summary conviction, saving to the defendant the right of appeal to the court of quarter sessions when the fine imposed is over five dollars.

Every one who understands the situation knows that the fire menace in the forests is the great drawback to a wholly successful forest policy in this State. Among all the States, Pennsylvania is yielded the prize for a business-like forest administration, and with a policy for the future outlined. Relating to the forest fire problem we seem to have a plethora of laws, and yet this problem is unsolved. An act, wise and far-reaching in its conception, is that of March 30, 1897, and if rigidly applied and adhered to would have prevented the wholesale burning and destruction of valuable forests. This is the act making constables of townships ex-officio fire wardens, giving them authority to summon help for extinguishing fires in their respective townships, providing for the payment of those so engaged and dividing the cost thereof between the county and the State. It likewise required constables to make to the courts quarterly returns of violations of the forest fire laws, providing penalties for failure to do so, and making it the "*special duty of the judge of said court to see these returns are faithfully made.*" This act was more honored in the breach than in the observance. The constables refused to extinguish fires because the commissioners refused to pay them. It is un-

American to be compelled to perform labor without just compensation, except as a punishment for crime. The commissioners refused to pay because they caught at the straw of unconstitutionality and stubbornly adhered thereto, notwithstanding that to this time the logic and weight of the argument was overwhelmingly on the side of entire constitutionality.

The act of March 22, 1899, is practically a repetition or reduplication of the act of March 30, 1897, so far as it relates to making the constables ex-officio fire wardens. It, however, extends to borough constables and gives them the power to arrest without warrant, the same authority with which they are invested by the act of 29th April, 1897.

The act of April 29, 1897, last cited, authorizes constables and other peace officers to arrest on view without warrants persons detected in the act of trespassing upon forests or timber lands upon such circumstances as to warrant the suspicion that there has been committed or is about to be committed some offense against the laws for the protection of such lands.

As was well said by the former Commissioner of Forestry, it is better to prevent fires from starting than to extinguish them after they have begun. That this fact has been patent to the Legislature for a period of more than thirty years is evidenced by an act approved June 2, 1870, entitled "An act to protect timber lands from fire," the preamble to which is as follows:

"Whereas, It is important to the people of the State that timber land should be protected from fire, which, owing to malicious conduct and carelessness of individuals, is causing vast havoc to the young growing timber, especially upon our mountains, therefore, &c."

The trained detective on guard will do more real good in preventing fires than many men summoned to extinguish them after once started. The above act of 1870 calling for the appointment of such detectives was improved and its scope enlarged by the amendment thereto approved July 15, 1897. The amendment fixes the penalty for the refusal of county commissioners to appoint detectives, it divides the expense of maintaining detectives between the county and the State, and fixes a limit of \$500 to the expense to be incurred on this account by a county in any one year.

The purposes of the act of 1870 were further enlarged by the act of May 2, 1901, which provides that where county commissioners fail or refuse to appoint detectives to ferret out and bring to punishment those who cause the burning of timber lands, the Commissioner of Forestry may make such appointments on request. When the Commissioner makes such appointments and convictions are obtained thereby, the county wherein such fires and convictions occurred may be deprived of State aid for inefficient county detectives appointed for the same purpose.

The cause of forestry in Pennsylvania received an impetus in the creation of a Department of Forestry by the act of February 25, 1901. The raising of the forestry work to be a co-ordinate branch of the State government has lent to it a solidity and dignity which it might otherwise not have attained so early. That portion of the Department act relating to forest fires is section two, referring only to the kindling of fires upon the reservations. It imposes a penalty of from \$100 to \$500 with costs; and in default of payment of both, an imprisonment until both are paid.

To provide for a more thorough protection of forest lands and give more effectiveness to the work of the employes of the Department of Forestry, the Legislature, by act of March 11, 1903, conferred upon them the same power given to constables by the act of April 29, 1897; that is, after taking the oath required of constables,

to arrest on view and without warrant all persons detected trespassing upon forest or timber land under such circumstances as to warrant the reasonable suspicion that such persons have committed, are committing, or about to commit some offense against the laws for the protection of such lands, or some infraction of the rules and regulations made for the government of the reservations. This gives power and large discretion, but not more than the circumstances surrounding such offenses usually demand. It is so easy to start a fire, so easy to make rapid retreat, so difficult to prove the crime after the offender has left the locality, that every obstacle should and of right ought to be removed from the exercise of all reasonable measures necessary to detect and bring the guilty to punishment.

By reason of the office held by constables they were made ex-officio forest fire wardens, and their duties were prescribed by various items of legislation passed from time to time as above shown. In the main they were charged with the hiring of men, the extinguishing of fires, and the submission of bills to county commissioners to meet the costs. The expense was to be paid by the county in the first instance, after which a portion was to be reimbursed to the counties from the State Treasury. In the more recent acts, which were principally amendatory of earlier laws, the amount per hour allowed for fighting fires was raised from 15c. to 25c. per hour, and those who were employed by the officers for this purpose were directed to receive 20c. per hour for their services.

The act of 31st March, 1905, P. L. 89, is an act amending the earlier law of 1897. In addition to raising the pay of the persons fighting fires, it conferred the additional power upon the officers to go out and extinguish an approaching fire. By these means a first step was taken toward the prevention of fires rather than their extinguishment after they have invaded a forest. This law also raised from \$10.00 to \$20.00 the penalty which should be imposed upon a person who refuses to respond to a call for help.

In 1907 the Legislature passed two laws relating to the subject of forest fires. The act of 25th April, 1907, P. L. 101, reaffirms the making of constables ex-officio fire wardens, and to the fire fighting force adds the members of the Department of Forestry. Their duties are prescribed therein and are much the same as those provided for in earlier laws. Prior to this act of 1907 a person who combatted forest fires without having first been called upon to do so by an officer, was not permitted to receive compensation for the work done. This situation frequently deterred persons from extinguishing fires, because having no direct personal interest in the timber that was burning, they could not afford to leave their employment unless payment for the service so rendered might be had. This law permits the fire warden to pay for such services provided he is satisfied that the service was faithfully rendered.

The second act of 1907, that of June 12th, P. L. 527, is limited in its application to the oil and gas regions of the State. It makes a closed season for the burning of brush and woodlands. During such seasons no fires might be started except under written permission from a fire warden, and then only provided certain precautions are taken. It further required that the owner or lessee of forest lands containing producing oil or gas wells, should once a year remove from a space within 100 feet of the wells, all inflammable material, and also to remove such material from the lands when within 100 feet of the right of way of an operating railroad. Every railroad company was likewise required to keep its right of way clear of grass, brush, and inflammable materials; to use spark arresters, and to prevent the escape of fire from ash pan and furnaces. No railroad company was permitted to dump burning coals on their right of way near such lands, and should a fire occur on neighboring lands within 100 feet of its tracks, the railroad company was required to assist in extinguishing the fire.

At the legislative session of 1909, an attempt was made to create a new system of fire wardens and new methods of extinguishing fires and paying the expense thereof. The purpose of this act was to prevent as well as suppress forest fires. All the laws relating to constables and their service as ex-officio fire wardens were repealed. The Commissioner of Forestry was directed to appoint a district fire warden in every borough and township in the State where there was need for such an official. The district warden was permitted to have assistants. The employes of the Department of Forestry were continued as ex-officio fire wardens. No owner or lessee of lands might recover any compensation for extinguishing fire upon his own lands. The pay of the wardens, their assistants and employes was continued the same as in former laws. Under this act all expense was to be paid in the first instance by the Commonwealth. At the end of the year the Auditor General was directed to collect from each board of county commissioners one-fifth of the amount of the expense for extinguishing fires in the respective counties. The fire wardens were not limited to the regions for which they were appointed, but might enter other townships or boroughs for the purpose of preventing fire. The expense of extinguishing fires in more than one county by the same person was to be apportioned among the counties. Those who fought and extinguished fire without having first been employed or directed to do so, were entitled to receive compensation upon proper proof. The act removed all personal liability from the fire wardens for acts done within the scope of their duty. Section 18 of this law gave the Commissioner of Forestry power to appoint persons to keep daily patrol during what are commonly known as the fire seasons. At no time did the Legislature ever appropriate sufficient money to carry out the provisions of this section. Fire wardens had authority to arrest on view persons who were detected committing an offence against any of the laws for the protection of forests and woodlands. They also were given authority to impress persons into service when such service was imperatively demanded.

By a consolidation of the laws relating to the protection of State Forests from fire as well as other woodlands not included in State Forests, by means of the acts of 1911, P. L. 163 and 861, the earlier conflicting statutes respecting forest and woodland fires were reduced to two simple sections. In the first act mentioned, which is for the protection of the State Forests, it is provided that if any person shall wilfully, negligently, or maliciously kindle a fire within any forest belonging to the Commonwealth, or shall set fire upon adjacent lands by means of which it shall be communicated to State Forests, he shall be guilty of a misdemeanor and subject to a fine not exceeding \$1,000, or imprisonment not exceeding six months. In order that there might be no uncertainty with respect to the meaning of the word "Person" in this law, a person is defined to be not only an individual or natural person but the artificial persons now existing in contemplation of law, as well as their officers, agents, or employes.

The act for the protection of trees and woodlands passed at the same session and relating to woodlands other than those included in State Forests, carries the same prohibitions and imposes the same penalties for violation.

In Monroe county there is now and has been for a number of years an association of land owners brought together to protect their woodland holdings from fire. The Pocono Protective Fire Association has been able to prevent largely the fire evil on the lands of its members. In order to heighten the interest of this and similar associations which might be formed, and to induce the formation of like associations for the local protection of woodlands, an amendment to the fire wardens' code of 1909 was approved July 22, 1913, P. L. 906. Wherever such association is formed for the above purpose and it is desired to cooperate with the State in the prevention of fires, the Department of Forestry is authorized to enter into such relationship and appropriate from its forest fire fund a sum of money equal

in amount to that expended by the local association for the employment of patrolmen. This act was recast at the session of 1915, P. L. 815, and provides that the Department and the local association shall jointly share the expense which may be incurred not only in the actual extinguishment of fires, but in their prevention. Since the passage of this law originally, the Central Pennsylvania Forest Fire Protective Association has been formed and the Department of Forestry has been co-operating with these two local associations.

The belief has been prevalent for some time that the laws relating to the whole forest protective system should be revised and clarified. Protection from forest fires includes a large portion of the endeavor necessary for proper protection; but there are other subjects as well which come under the head of protection. It is of importance to protect private forests from harmful agencies other than fire. The whole subject was carefully gone over and revised at the session of 1915. The result is the forest protection code of 1915, P. L. 797. This is undoubtedly the most expressive and far reaching law which has yet been passed in this State. The chief forest fire warden is an officer of the Department of Forestry and he gives his whole time to the subject of forest protection. He is charged with the duty of seeing that competent and active persons are appointed to the office of fire warden, and carefully checks up all their activities. Increased power is given the Bureau of Forest Protection created by this law, over the railroads, which in the past have been so negligent respecting forest fire. He may declare a situation to be a nuisance and direct its abatement when, in his judgment, its continuance would be promotive of forest fire danger. District fire wardens are limited to foresters in the employ of the Department of Forestry, and these are given more ample powers than they have heretofore had under existing law. Local fire wardens are chosen solely for their qualifications and their ability to serve well in the office. Occasionally in various parts of the State there are persons who are glad to act in the capacity of fire warden without expectation of compensation. This they do because of their general love for the forest and their desire to see it preserved from destruction. Such persons may be appointed special fire wardens. The foresters and rangers in the employ of the Department of Forestry are all ex-officio fire wardens under this act. They receive only their expenses incurred in the performance of their duty.

This new law has been in effect since the date of its approval, June 3, 1915. A complete revision of the personnel of the fire fighting force is being made and has progressed well toward a conclusion. A better body of men is now in the employ of the State, ready to act in this service intelligently and with the sole desire to perform their duties well. The law is giving satisfaction thus far and the belief is that when fully applied and better understood it will meet the case against forest fires more completely than anything which has yet been tried in Pennsylvania.

Jan. 4, 1916.

I. C. W.

THE NEW FOREST PROTECTION CODE.

AN ACT

To establish a Bureau of Forest Protection within the Department of Forestry: designating the officers who shall constitute the Bureau, their duties and salaries: prescribing penalties for the violation thereof; and repealing all laws, general, special, or local, or any parts thereof, that may be inconsistent with or supplied by this act.

Section 1. Be it enacted, &c., That a Bureau of Forest Protection is hereby established within the Department of Forestry. The persons appointed thereto or assigned to duty therein shall be subject to the authority and under the control of the Commissioner of Forestry.

ARTICLE I.

Chief Forest Fire-Warden.

Section 101. Appointment.—Immediately after this act becomes effective, and thereafter whenever a vacancy occurs, the Commissioner of Forestry shall appoint a forester in the employ of the department to be chief forest fire-warden.

Section 102. Duties:

(a) It shall be the duty of the chief forest fire-warden to take such measures for the prevention, control, and extinction of forest fires as will assure a reasonable protection from fire to woodlots, forests, and wild lands within the State.

(b) The chief forest fire-warden shall institute the system of forest fire-wardens, as hereby created, and shall have authority to supervise and manage the same.

(c) He shall reorganize the former system of fire-wardens, and as rapidly as possible make it conform to the provisions of this act.

(d) As soon as convenient after this act becomes effective, the chief forest fire-warden shall divide the State into forest fire districts, for the organization of an effective forest fire-warden system.

(e) At the end of each calendar year he shall render to the Commissioner of Forestry a report for the year, covering all phases of the work under his direction, which report, together with a list of the fire-wardens, shall be published annually as a bulletin of the Department of Forestry.

(f) He shall collect, with the assistance of the force and means at his command, data relating to location, area, and fire hazard of woodlots, forests, and wild lands within the State; data relating to forest fires, and losses resulting therefrom; and such other data as he may deem to come within the purview of his duties, and as he may desire to present to the commissioner or to the public.

(g) He shall tabulate and draft data in such manner that the information may be easily and readily appreciated. Maps, drafts, and tables shall be published, in the discretion and under the direction of the Commissioner of Forestry, as a part of the annual report of the chief forest fire-warden or as separate bulletins of the department.

(h) He shall plan and put into effect as rapidly as convenient a system of fire-towers and observation stations, which shall cover the regions subject to forest fires, purchase the necessary material and equipment, and hire the necessary labor for the installation of the system.

(i) When, in his discretion, the purposes of this act may be accomplished better by the appointment of certain forest fire-wardens as watchmen or patrolmen during dry seasons, and within regions subject to great fire risk, he shall make such appointments; provided that no person shall be appointed watchman or patrolman without first having been appointed a forest fire-warden, and that wardens who have proved to be efficient shall be given preference.

(j) He may enter into agreements, with the consent of the Commissioner of Forestry, with persons, firms, corporations, or associations, upon satisfactory terms, for the successful accomplishment of forest fire prevention or control.

(k) He shall conduct such educational work in relation to forest fires as may be approved by the Commissioner of Forestry.

(l) He shall audit all bills incurred under this act. He shall approve those which are correct and should be paid and present them to the Commissioner of Forestry, who shall transmit them to the Auditor General.

(m) Upon receipt of checks from the State Treasurer, he shall send them to the persons entitled thereto.

(n) He shall have authority to declare a public nuisance any property which, by reason of its condition or operation, is a special forest fire hazard, and, as such, endangers other property or human life.

(o) He shall notify the owner of the property, or the person responsible for the condition declared a public nuisance, and advise him as to the abatement or removal of such nuisance. In the case of a railroad, such notice shall be served upon the superintendent of the division upon which the nuisance exists.

(p) He shall collect and arrange information obtained concerning violation of laws relating to the protection of forests from fire, and present the same to the Commissioner of Forestry, who shall file it with the Attorney General for legal action.

Section 103. Compensation.—The chief forest fire-warden shall be paid a salary not to exceed two thousand five hundred (\$2,500) dollars per annum, and necessary expenses incurred in the performance of his duties.

ARTICLE II.

Clerical Assistants.

Section 201. As soon as convenient after this act becomes effective, the Commissioner of Forestry shall assign to the Bureau of Forest Protection a forester

in the employ of the department, to act as a clerk to the chief forest fire-warden; and, from time to time, may assign such other clerical assistants to the bureau as may be necessary.

ARTICLE III.

District Fire-Warden.

Section 301. Appointment.—As rapidly as fire districts may be determined upon by the chief forest fire-warden, and thereafter whenever vacancies occur, the Commissioner of Forestry shall appoint foresters in the employ of the department, to be known as district fire-wardens.

Section 302. Duties:—

(a) The district fire-warden shall establish headquarters at some advantageous place within his district; shall act as the field representative of the chief forest fire-warden, and be under his direction.

(b) He shall be responsible for the collection of data, within his district, necessary for accomplishing properly the purposes of this act.

(c) He shall make recommendations to the chief forest fire-warden for the appointment of local fire-wardens, the location of fire-towers, the employment of patrolmen, and the region to be patrolled, and regarding such other matters as may come to his attention which would tend to improve the protective system.

(d) He shall arrange for annual meetings of fire-wardens within his district, for instruction in forest fire matters.

(e) He shall report to the chief forest fire-warden situations and conditions existing within his district which are or may become forest fire hazards. He shall serve notices for the correction or removal of such conditions, when issued by the chief forest fire-warden.

(f) He shall receive, audit, and approve the reports and accounts of the local fire-wardens before submitting them to the chief forest fire-warden.

(g) He shall act as an inspector of the work of local fire-wardens, and render assistance to them.

(h) He shall conduct educational work, and develop co-operation between local agencies and the Department of Forestry for the prevention and suppression of forest fires.

(i) He shall perform such other duties as may be assigned to him by the Commissioner of Forestry or the chief forest fire-warden.

Section 303. Compensation.—The district fire-warden shall be paid a salary not to exceed one thousand eight hundred (\$1,800) dollars per annum, and all necessary expenses incurred in the performance of his duties.

ARTICLE IV.

Local Forest Fire-Wardens.

Section 401. Qualifications.—A person appointed a local fire-warden shall be chosen expressly by reason of his physical fitness, sobriety, honesty, and ability to perform the duties herein required, and must have the recommendation of the district fire-warden for the forest fire district in which he is located. Where no district fire-warden has been appointed, the chief forest fire-warden shall first satisfy himself as to the above qualifications before making an appointment.

Section 402. Appointment.—Local fire-wardens shall be appointed by the chief forest fire-warden in such localities as he may deem necessary.

Section 403. Certificates of Appointment.—Every person appointed a forest fire-warden under this act shall be given a certificate of appointment, issued by the chief forest fire-warden, and may be furnished with an appropriate badge, in the discretion of the chief forest fire-warden.

Section 404. Duties:—

(a) Whenever fire is discovered in or approaching woodlots, forests, or wild lands, whether the same be owned by individuals, corporations, or by the Commonwealth, it shall be the duty of a forest fire-warden immediately to take such measures as are necessary to extinguish the fire.

(b) Whenever fires have been combated or extinguished as provided for in this act, the forest fire-warden shall prepare a correct statement of expenses, upon forms to be furnished by the department; which statement must be verified by oath or affirmation, and must be filed with the district warden, and by him forwarded to the chief forest fire-warden within sixty days of the date of fire.

(c) He shall promptly investigate the cause of each fire which comes to his knowledge, collect such evidence as may be discovered relating thereto, and such other facts as he may be directed, and report the same to the chief forest fire-warden.

(d) Upon receipt of a check from the State Treasurer, he shall at once pay by check the amounts due to such persons as are entitled to receive pay from him.

(e) He shall attend an annual meeting of fire-wardens in his district when notified, or present a reasonable excuse.

(f) When designated as a patrolman or watchman, he shall perform such duties as may be assigned him by the chief forest fire-warden or by the district fire-warden.

Section 405. Compensation.—Each local fire-warden shall be paid at the rate of thirty cents per hour for the time actually employed in the performance of his duties. He shall also be paid for the necessary expenses incurred in the performance of his duties. In addition, he shall be paid annually the sum of ten dollars; provided that the Commissioner of Forestry may withhold this annual sum for just and reasonable cause.

A local forest fire-warden shall not be paid from the forest fire fund, for services in any one month, an amount in excess of fifty dollars.

ARTICLE V.

Special and Ex-Officio Forest Fire-Wardens.

Section 501. The chief forest fire-warden may appoint persons who will serve without compensation as special or as ex-officio forest fire-wardens. They shall have the same power and authority as local forest fire-wardens, but their duties may be changed or extended by the chief forest fire-warden.

Section 502. Foresters and rangers in the employ of the Department of Forestry shall be forest fire-wardens ex-officio.

Section 503. Special and ex-officio forest fire-wardens shall receive no compensation under this act, other than the necessary expenses incurred by them in the performance of their duties as fire-wardens.

ARTICLE VI.

General Powers.

Section 601. A fire-warden shall have authority to employ such other persons as, in his judgment, may be necessary to render assistance in extinguishing fire; and, whenever it shall not otherwise be possible for him to secure a sufficient number of persons to assist in extinguishing fire, he is hereby authorized to compel the attendance of persons and to require them to render assistance in the extinguishing of fire, under penalties prescribed in this act.

Section 602. A fire-warden shall have authority to administer an oath or affirmation, in order to examine any person who he believes knows facts relating to any fire, or who claims compensation for services rendered.

Section 603. Every official provided for by this act shall have authority to enter upon any land at any time for the purpose of performing duties in accordance herewith.

Section 604. A fire-warden shall have power to arrest on view, without first procuring a warrant, any person detected by him in the act of committing an offense against any of the laws now enacted or hereafter to be enacted for the protection of forests, woodlots, timber, or wild lands, or when he shall have a reasonable suspicion that any person is committing or is about to commit some such offense. The warden shall have further power to take the offender before a justice of the peace, or other magistrate having jurisdiction, for hearing trial, or other due process of law. The further conduct of any such case shall be entrusted to, and be undertaken by the Attorney General.

Section 605. A fire-warden shall not be personally liable for any act required or permitted to be done under the provisions of this law, while acting within the scope of his duties as a fire-warden.

ARTICLE VII.

Private Persons.

Section 701. Fire-Fighters.—Persons who extinguish forest fires, except as otherwise provided, shall be paid at a rate per hour to be determined for each fire district by the chief forest fire-warden, with the approval of the Commissioner of Forestry, and based upon the rates of wages received for day labor within the respective fire districts; provided the rate does not exceed twenty-five cents per hour.

Section 702. Appeal to the Commissioner of Forestry.—If any person shall feel aggrieved by the act of any fire-warden, such person may appeal to the Commissioner of Forestry, who will examine into the complaint. After hearing the parties he shall decide as to him shall seem just and right.

Section 703. Land Owners.—Nothing in this act shall be so construed as to relieve the owner or lessee of lands, upon which fires may burn or be started, from the duty of extinguishing such fire so far as may lie within his power.

No owner or lessee of land upon which fire may burn or be started, nor any person during employment with such owner or lessee, nor any other person with a present vested interest in such land, shall receive compensation under this act for extinguishing fire upon his land or the land to which his interest is attached.

No person who is responsible for the spreading of a fire to a woodlot, forest, or wild land, nor any person in his employ, may receive compensation from a fire-warden for helping to extinguish such fire.

ARTICLE VIII.

Railroads.

Section 801. All steam and electric railroad companies owning or operating lines of railroad within the State shall put into effect such reasonable regulations for the prevention of forest fire as may be deemed necessary by the chief forest fire-warden, providing the regulations be approved by the Public Service Commission.

ARTICLE IX.

Expenses.

Section 901. Expenses incurred under this act shall be paid from the general forest protection appropriation.

Section 902. No bills of expense relating to the protection of forests from fire, incurred under this act, shall be honored by the chief forest fire-warden unless presented to him within sixty days after the expense has been incurred.

Section 903. The Auditor General shall satisfy himself as to the correctness of all bills transmitted to him by the Commissioner of Forestry for expense incurred under this act, and shall then draw his warrants against the general forest protection appropriation in favor of the persons and for the amount shown by the approved bills.

ARTICLE X.

Penalties.

Section 1001. Penalty for Neglect of Duty.—If a fire-warden shall fail to perform his duty, or shall render a false or fraudulent statement of service alleged to have been performed, or shall fail to pay promptly the respective amounts due those who have rendered service, after said amounts have been transmitted to him, he shall be guilty of a misdemeanor, and upon conviction thereof shall be fined a sum not exceeding one hundred dollars, or undergo imprisonment not exceeding three months, or both, in the discretion of the court.

Section 1002. Penalty for Refusing to Aid a Fire Warden.—If any fire-warden, being in need of assistance in the suppression of fire, shall call upon any person to render assistance, and such person shall refuse without a just and fair excuse he is hereby declared to be guilty of a misdemeanor, and upon conviction thereof shall be sentenced to pay a fine not exceeding one hundred dollars, or undergo imprisonment not exceeding one month, or both, in the discretion of the court.

Section 1003. Penalty for Hindering an Officer in his Duties.—A person who shall prevent or obstruct, or attempt to prevent or obstruct, a fire-warden in the performance of a duty required by this act, or the exercise of the rights of entry, access, or examination by any warden or officer of this bureau, shall be guilty of a misdemeanor, and upon conviction thereof shall be sentenced to pay a fine not exceeding one hundred dollars, or undergo imprisonment not exceeding one month, or both, in the discretion of the court.

Section 1004. Penalty for Non-Abatement or Removal of Nuisance.—Every person or corporation refusing to comply with an order of the chief forest fire-warden for the abatement of a nuisance, under this act, shall be guilty of a misdemeanor, and upon conviction thereof shall be sentenced to pay a fine of not more than one hundred dollars, or undergo imprisonment not exceeding one month, or both, in the discretion of the court. In construing or enforcing the provisions respecting the abatement of nuisances, under this act, the neglect or refusal of any officer, agent, or other person acting for or employed by a corporation, and having within the scope of his employment the supervision of the property complained about, shall in every case be deemed to be the neglect or refusal of the corporation itself.

Every day's continuance in the non-abatement of a nuisance, after an order by the chief forest fire-warden to abate the same, shall be a separate and distinct offense.

If a preliminary injunction be granted or any interlocutory order of supersedeas intervene, no penalty shall be incurred on account of non-abatement of such nuisance for the period of time such injunction or supersedeas is in force.

Section 1005. Penalty for Causing Forest Fire.—Whenever a fire set by any person destroys property belonging to another, it shall be prima facie evidence that the loss occasioned is the result of negligence, and that the person responsible

therefor is guilty of a misdemeanor. Upon conviction he shall be fined not exceeding one thousand dollars for each offense, or undergo imprisonment not exceeding six months, or both, in the discretion of the court. This section shall not apply to the setting of a back fire in good faith, to extinguish a fire then burning.

Section 1006. Every steam and electric railroad company, owning or operating lines of railroad within the State, which shall neglect or refuse to put into effect such reasonable regulations for the prevention of forest fire as may be deemed necessary by the chief forest fire-warden and approved by the Public Service Commission, shall forfeit and pay to the Commonwealth of Pennsylvania, for each neglect or refusal, the sum of one hundred dollars, to be recovered by an action of assumpsit, instituted in the name of the Commonwealth by the Attorney General in the court of common pleas of Dauphin County, which court is hereby clothed with exclusive jurisdiction throughout the Commonwealth to hear and determine such actions.

Every day's continuance in refusal to comply with such regulations, after a notice from the chief forest fire-warden and the lapse of a reasonable length of time for compliance therewith, which time shall be fixed in the notice, shall be a separate and distinct offense.

Section 1007. Disposition of Fines.—Moneys received from the payment of fines shall be paid to the treasurer of the county in which suit is brought, for the use of the county, except as otherwise provided in this act.

ARTICLE XI.

Section 1101. When, in the judgment of the Commissioner of Forestry, he deems it necessary for general forest protection that causes or agencies injurious to trees and forests, other than fire, be investigated, reported upon, or abated, he is hereby authorized to assign to the Bureau of Forest Protection persons competent for such work. The salaries of such persons, so assigned, shall be fixed by the Commissioner of Forestry, and shall in no case exceed the ordinary and usual amount paid for such services. Salaries and expenses shall be paid out of the general forest protection appropriation.

ARTICLE XII.

Section 1201. This act shall take effect June first, one thousand nine hundred and fifteen, or, if approved subsequent to that date, upon date of approval. All appropriations for forest fire protection which shall be made at the legislative session of one thousand nine hundred and fifteen shall be deemed to have been appropriated for general forest protection, and shall be expended for that purpose by the Department of Forestry.

ARTICLE XIII.

Repeal.

Section 1301. All acts or parts of acts inconsistent with or supplied by this act are repealed.

Approved—The 3d day of June, A. D. 1915.

MARTIN G. BRUMBAUGH.

REORGANIZATION OF FOREST FIRE WARDEN SYSTEM.

On September first, 1915, I began my duties under the new Act as Chief Forest Fire Warden, with Howard W. Siggins, clerk. Previous to that time, however, in connection with my duties as Forest Inspector, I had come into more or less close relation with the forest fire wardens and the forest fire business of the Department generally. In consequence of having handled the fire warden correspondence since about March, 1914, the defects of the old system of affairs were familiar to me and there were well under way plans for a partial reorganization under the old law of 1909, when the new law was approved.

The first work under the new law, necessarily, was that of reorganizing the forest fire wardens. Under the old act of 1909, wardens were to be appointed for township and boroughs. Most of the men upon our list had been appointed in the fall of 1909. Some few, however, were appointed in the last half of 1914 or in the spring of 1915. From the correspondence which was received during the past year, it was evident that in many regions where forest areas exist, there were no wardens; in other cases, there were wardens listed who never could be of use because there were no forests to protect. The old law provided that "district wardens" might have "assistants" to help them cover their townships, but in few instances were assistants appointed where needed, with the result, that wardens would gather up men and go as much as twelve miles or more from home to fight fire. Needless to state, by the time the fire was reached, it would be of considerable size and the expense of extinction would be large also. Some wardens had been incapacitated by reason of age, sickness, or accident. Some had moved out of the township, leaving no one to attend to the matter. Some did not keep in touch with the Department and were of the impression that their term of appointment had expired. Some simply refused "to bother" looking after fires. Some would not fight fire because several years back they had been notified of the exhaustion of one of the appropriations and they were afraid no money was available with which they or men whom they might hire would be paid. Some had died. Some were in occupations making it impossible for them to attend properly to their duties as forest fire warden. Only a few, apparently, made any sort of effort to let people know that they were wardens. Under such conditions, the wardens were not notified promptly of fires, with the result that many fires were allowed to reach large size before being attacked. Many wardens, evidently, have been indifferent as to the promptness with which they reached a fire, and in some cases men were appointed upon good recommendations who proved to be unfit for any position of trust and were not respected by the people of their communities.

Notwithstanding these defects which apparently could not be much improved under the old act, there were some notable exceptions of faithfulness on the part of our fire wardens, and, in such cases, fires were limited in size and fire bills were always small.

It was realized that these conditions would have to be remedied and in the fall of 1914 a beginning was made, with the co-operation of the foresters in charge of State Forests. However, it was not until the putting into operation of the Act of 1915 that real progress was made. On September 1st, the following circular was sent to all our foresters, a copy of the new act having been sent previously.

F. P. B. Circular, 1.

Harrisburg, Pa., September 1st, 1915.

Dear Sir: In order to facilitate the work of reorganizing the forest fire warden system each forester is requested:

1st. Make a rough sketch of the township or parts of townships in your immediate neighborhood in which there are now forest fire wardens or in which they are needed.

2nd. If possible, sketch in roughly the forest or waste land areas in need of protection.

3rd. Indicate as nearly as possible just where each forest fire warden lives, including the location of foresters and rangers.

4th. Draw a red line around the townships or parts of townships over which you can supervise the work of the forest fire wardens, and can audit their bills and reports quickly and conveniently to you and to the wardens.

5th. Make a report upon the present qualifications of all forest fire wardens within your knowledge and state reasons for retaining or dismissing them. Note the requirements of the new law. If you do not know the wardens, get to know as many of them as you can and learn about them from responsible people.

6th. Make recommendations for new appointments, indicating on the sketch in red ink the location and name of suggested men. If you think a certain locality should have a warden, but you can make no recommendations now, indicate the place with a red "x" on the sketch. Recommend only such men as you are reasonably sure you can trust and upon whom you can depend. Give their post office.

7th. The forest fire wardens, as far as possible, should be responsible men in a community. Every warden should have a telephone. We shall endeavor to make the organization as permanent as possible, consequently young men who are likely to remain in a community are to be preferred to men of 60 years or over.

8th. Even though you may have done some of the above work before, do so again at your earliest convenience so that the information may be complete and readily available.

9th. Give telephone numbers of wardens, including foresters and rangers, the name of the telephone company, and the central through which they are reached.

10th. Give post offices within your district from which rural routes start, and the names of the rural carriers.

If you do not have a township map available, make request upon this office and one will be mailed to you.

GEORGE H. WIRT,
Chief Forest Fire Warden.

When this circular was sent out, there were 1,589 forest fire wardens upon our list. There were also 152 foresters and rangers in the service of the Department who are ex-officio forest fire wardens, making a total of 1,741 men.

The foresters are located in twenty different counties, but can easily supervise the protective organization of at least thirty counties. Their reports began coming in promptly, with recommendations for re-appointments, dismissals, and new appointments. On October 1st, a copy of the following circular was sent to each fire warden in order to get first hand information from each one personally, as far as possible, and at the same time to place in his hands a copy of the new law.

F. P. B. Circular 2.

Harrisburg, Pa., October 1, 1915.

Dear Sir: The records of this Department show that you were appointed to serve the Commonwealth as a forest fire warden. Inclosed is a copy of a recent act of the Legislature providing for a reorganization of the forest fire warden system of the State. The reorganization must place the forest fire control work upon the highest possible plane of efficiency, for it is absolutely necessary that the loss from forest fires be reduced to a minimum. It is a great work and we must have honest service from every man. After reading the law carefully, furnish the information asked for on the inclosed form, and forward it in the inclosed stamped envelope.

If this matter is not attended to promptly, we shall assume that you are not interested and shall remove your name from our list.

Until you receive a notice of such removal of your name, or a card of certification of appointment under the new law, use the forms which you now have and carry out your duties in accordance with the old law.

Any question you may have with reference to the new law will be gladly answered.

Because of the small appropriation available, that part of Section 405 providing for an annual payment of ten dollars cannot be put into effect.

Your attention is called to Section 1001.

Any information relative to general forest fire conditions in your neighborhood, and suggestions as to fire prevention, will be gladly received.

Respectfully yours,

GEORGE H. WIRT,
Chief Forest Fire Warden.

With circular 2 was sent a copy of the following form which is a 5x8 inch blue card.

F. P. B. Form 2.

PENNSYLVANIA DEPARTMENT OF FORESTRY.

Name Post office
 Township County
 Do you desire to serve as a forest fire warden under the new law?.....
 If not, can you recommend any one? Name.....
 Address.....
 Do you come within the qualifications as required by Section 401?.....
 What is your age?..... What physical defects have you?.....
 For reference give names and addresses of three responsible people.

 What is your occupation?..... By whom employed?.....
 Do you hold any appointive or elective position?..... If so, what?.....
 Do you have a telephone?..... Name of telephone company,
 Exchange through which you can be reached..... Telephone No.....
 If you do not have a telephone, give name and number of nearest telephone through which you can be reached.

On the back of this form make a rough sketch of your township, showing where you live with reference to the nearest town, school house, or church. Give necessary names and distances for identification of your location.

On the same date, a copy of the following circular was sent to each forester.

F. P. B. Circular 4.

Harrisburg, Pa., Oct. 1, 1915.

Dear Sir: Inclosed is a copy of F. P. B. Circular 2, a copy of which has been sent to all forest fire wardens. Please fill out F. P. B. Form 2 for yourself and one for each ranger. Return these forms at once.

Under the new act, the former district and assistant fire wardens become local forest fire wardens and all are of equal rank. Each man must receive a certificate of appointment under the new act before its provisions become operative for him. After he has received his certificate, he is entitled to 30 cents per hour, unless employed as a patrolman, in which case he shall receive a monthly wage and shall not be paid extra for fire fighting unless by specific agreement.

Employees will be paid 15 cents per hour until further notice.

Destroy all old Forest Fire Bills. Use only new Form 16 providing for 30 cents per hour for fire wardens. Form 15 is to be used as it is.

See that all wardens who are to submit bills and reports to you use up-to-date forms. New copies will be mailed to each one as newly appointed.

You will be notified as to what wardens are to report to you and each warden will be so notified.

Please note that all bills must be in this office within 60 days after date of service. If presented after that time, they will not be paid. Keep your wardens posted on this point.

Encourage each warden to fill out Form 15 for each fire that comes to his notice, no matter how small, and even though there is no bill in connection with it. Bills for more than one fire may be combined under one affidavit. Save expense in this way whenever possible.

Yours truly,

GEORGE H. WIRT,
Chief Forest Fire Warden.

As rapidly as No. 2 forms were returned by a forester for himself or ranger, a certificate of appointment was issued to him. The certificate is in the form of a white card $3\frac{1}{2}$ x $2\frac{1}{4}$ inches and is known as F. P. B. Form 1.

Pennsylvania Department of Forestry

THIS CERTIFIES THAT

.....
 is a FOREST FIRE WARDEN in Pennsylvania
 and is authorized to perform the duties and exercise
 the powers conferred upon him by law.

Chief Forest Fire Warden

Across the face of the certificate was written in red ink: "Ex-officio." On the back of the card is printed: "Good until January 1, 1917, unless earlier revoked."

The various counties in which foresters are located were taken up in detail. The Department's correspondence relating to forest fires from January 1, 1913, and in some cases as far back as 1909, was arranged by counties. This was then gone over carefully to get whatever information might be of value in handling the county under consideration. Our old list of wardens was checked up and then a forester's report was considered. If an old warden were recommended, and he had returned Form 2, a certificate of appointment was sent to him, together with the following circular:

F. P. B. Circular 5.

Harrisburg, Pa., October 2, 1915.

Please note the following:

1. Inclosed is your certificate of appointment as a forest fire warden. This is to serve you in place of a badge.
2. All employees entitled to be paid for fighting forest fires will be paid 15 cents per hour until further notice. Hereafter you will receive 30 cents per hour.
3. All bills must be made up in time to get them to this office *within 60 days from date of service*.
4. You will submit all forest fire bills and reports to forester, , and be subject to his instructions relating to forest fires.
5. Under separate cover you will receive copies of Form 15, Forest Fire Reports; copies of Form 16, Forest Fire Bills.
6. Destroy all forms now in your possession not exactly like the ones now being sent you.
7. Make one report for each fire, no matter how small.
8. Bills for more than one fire may be placed upon Form 16 in order of date and totaled, *using one affidavit*.
9. Let every one know that you are a forest fire warden and ask them to notify you promptly in case of fire.
10. Get after forest fires as soon as they come to your notice.
Do not delay one minute.
Do not wait until night time.

Yours truly,

GEORGE H. WIRT,
Chief Forest Fire Warden.

In paragraph 4, there was inserted the name and address of the forester to whom the forest fire warden was to report. A letter was immediately sent to the forester notifying him of the appointment.

Many of the old wardens were prompt in returning their forms and expressed their desire to be relieved from duty. Their resigna-

tions were always accepted by letter, or by the following form mimeographed upon postal cards:

F. P. B. Form 4.

Dear Sir: Your statement that you no longer desire to serve as a forest fire warden has been received, and your resignation is accepted. Thanking you for your past assistance and trusting that we may still have your co-operation, I am,

Yours truly,

GEORGE H. WIRT,
Chief Forest Fire Warden.

When a former warden recommended any one as his successor, the recommendation in each case was first referred to the forester, and if the forester approved the recommendation, an offer of appointment was forwarded as in the case of recommendations for new appointments by the forester himself. In the case of all new recommendations, a copy of the following form is sent:

F. P. B. Form 3.

Dear Sir: You have been recommended as a man qualified to fill the position of Local Forest Fire Warden as required by Article IV of the inclosed act. Please read it carefully before filling up the accompanying form.

The prevention, control, and extinction of forest fires is of great importance to the Commonwealth. The State needs men who realize this fact and who will render honest and efficient service. The position is not one from which any amount of money can be obtained, but it is one in which a man may show a patriotic interest in his community and his State in an obscure way, at a reasonable wage while on duty.

Any questions you may have with reference to the law will be gladly answered.

Owing to a very small appropriation, that part of Section 405 providing for an annual salary of ten dollars cannot be put into effect.

Your attention is called to Section 1001.

Please return the form at your earliest convenience in the inclosed stamped envelope.

Yours truly,

GEORGE H. WIRT,
Chief Forest Fire Warden.

In this way, every man appointed under the new law has had the recommendation of one of our foresters and we are reasonably sure that we may expect efficient service with forest fires reduced in number and in extent.

Some few wardens have been instructed to report to Harrisburg, and to each of these a copy of Circular 5 was sent, inserting in paragraph 4, "Chief Forest Fire Warden, Harrisburg, Pa."

The following counties have no forest fire wardens at this time:

Beaver
Delaware

Erie
Greene

Philadelphia
Washington

The following 27 counties have been reported upon in part or entirely by foresters:

Adams
Bedford
Berks
Cameron
Carbon
Centre
Clearfield
Clinton
Cumberland

Elk
Franklin
Fulton
Huntingdon
Juniata
Lycoming
McKean
Mifflin
Monroe

Perry
Pike
Potter
Snyder
Somerset
Tioga
Union
Wayne
Westmoreland

Some of the men who have been recommended have not yet returned the No. 2 forms and in a number of places, good men must still be found. At the end of the year, 580 certificates of appointment had been issued. There have been about 200 resignations and dismissals. There were 137 new recommendations made, and of these, 73 have accepted and have been appointed.

CORRESPONDENCE.

During the last four months, in addition to the heavy correspondence relating to reorganization, the regular forest fire correspondence was taken care of. There was also some correspondence with forestry officials of various states as a result of the sending out of the following circular:

F. P. B. Circular 3.

Harrisburg, Pa., September 16, 1915.

Dear Sir: Inclosed is a copy of a recent act of the Legislature in regard to forest fires, under which this Department is now working.

We desire to be advised concerning the very best ideas covering the prevention, control, and extinction of forest fires, educational campaigns, equipment, etc. Will you, therefore, be kind enough to forward copies of all available literature, forms, and instructions which are found of value in your work? If you have any publications which you may not send free of cost, kindly state titles and cost.

Any suggestions with reference to your laws and activities, their valuable points or weak points, or concerning our law, will be received gladly.

If this Department is not on your mailing list will you kindly place it there, as well as my own name for individual copies of your publications? If my name is already upon your list with Mont Alto as my address, please change it to the address above.

Thanking you in advance, I am,

Yours truly,

GEORGE H. WIRT,
Chief Forest Fire Warden.

The material received from other States will be worked over early next year and a synopsis made of good ideas applicable to our conditions.

Forest Fire Bills.

On September 1st, there had been approved for payment from the deficiency appropriation to cover expenses for fires occurring previous to June 1st, 1915, \$14,938.50. Since then, 19 bills have been approved amounting to \$398.38, making the total expenditure from the deficiency appropriation \$15,336.88.

On September 1st, there had been approved for payment from the appropriation to cover the expenses of forest protection between June 1st, 1915, and June 1st, 1917, bills amounting to \$294.75. Since that time, there have been approved the following items:

107 bills for fire extinction,	\$2,100 82
3 bills for patrol services,	450 50
4 bills for expenses of foresters while reorganizing fire wardens,	60 11
1 bill under co-operative agreement with associations,	46 85
Salary of Chief Forest Fire Warden, Sept., Oct., Nov., Dec.,	833 32
Expenses of Chief Forest Fire Warden,	13 46
Salary of clerk, Sept., Oct., Nov., Dec.,	300 00
Expenses of clerk,	4 04
Postage,	300 00
	\$4,109 10

The total expenditure from the current appropriation at the close of December 31st was, therefore, \$4,403.85.

Co-operation.

There can be no question but that forest fires will continue to devastate the forests and wild lands of this State until we can obtain a close co-operation between those who come into contact with such lands and those who are interested or should be interested in their development.

This co-operation naturally should begin with the officials of various parts of the State Government. It is folly for one branch of the government to be striving for a certain aim and for another branch to frustrate that aim by its activities, or even by its indifference to those problems in which it can help the State as a whole without any inconvenience, extra expense, or overlapping duties. The present Governor has recognized this fact and in repeated statements has instructed all State employes to co-operate with each other. The idea was crystallized in an act of the recent legislature "extending the powers and duties of foresters, forest rangers, game protectors, deputy game protectors, special deputy game protectors, fish wardens, and deputy fish wardens of this Commonwealth," making it the duty of each of these officials to enforce all laws relating to forestry, fish, and game. A mistaken notion of the duties of these various officials was responsible for the Act, no doubt, but it expresses in a crude way the desire for co-operation. In May, the Commissioner of Fisheries, and in July, the secretary of the Game Commission, issued letters of instructions to their men in regard to this Act, but to date, no definite statement relating to their assistance in the matter of forest fires has been issued. It is to be hoped that such a statement may be agreed upon in the near future.

However, the secretary of the Game Commission, who is charged with the publication of the Game, Fish, and Forestry laws, co-operated very effectively with this Department in regard to forest fires by having printed upon the back cover of the digest, the following:

Forest Fires in Pennsylvania

MUST BE

Stopped

if you desire **GAME, FISH, and FORESTS** for the future

See Page 254

Page 253 of the pamphlet is the same as the above and page 254 follows:

STOP FOREST FIRES.

Forest fires are doing more to destroy the game, fish, and forests of Pennsylvania than any other influences.

Every one ought to do his share toward preventing the tremendous economic loss which results from forest fires, and may help greatly by observing the following suggestions:

Be sure your match, cigarette, or cigar butt and pipe ashes are dead before throwing them away.

Build what fires must be used only upon bare soil and in such places that fire cannot spread.

Be sure your fire is extinguished before leaving it.

Burn no brush, or other material, near woodlands upon a windy day, and under all circumstances stay by the fire until it is dead.

Be as careful of fire in the woods as you are in your home.

Help extinguish a fire as soon as one is discovered. If you cannot help, notify the nearest fire warden, and if possible send a substitute.

Learn who your nearest fire warden is and give him your support.

In addition to this, in his Letter of Transmittal, the Secretary of the Game Commission calls attention to the serious results of forest fires and the necessity for their suppression. This digest is studied by those who frequent the woods and there can be no question but that the fire warning will be heeded by many.

The efficient help rendered us by the State Police cannot be commended too highly. These officers have not only prevented fires by their timely patrol service, but have been prompt in extinguishing fires that have come to their notice. They have also done good service in making investigations of facts relating to forest fires.

In November, the following correspondence was carried on between the Department of Forestry and the Highway Department:

November 9, 1915.

Hon. R. J. Cunningham, State Highway Commissioner, Harrisburg, Pa.

Dear Sir: There are three propositions in which this Department would like to have the co-operation of your Department.

The first matter is with reference to the posting of notices relating to the protection of forests from fire along State highways. In accordance with the in- and among them, forest fire posters put up by this Department. We believe that instructions sent out to your officials, they have been removing notices of every kind the destruction of forests by fire renders unattractive the scenery along hundreds of miles of State highway and, since the Commonwealth is interested directly and indirectly in the preservation of forests, we believe that every Department should co-operate with us in helping to prevent these fires. The posting of these notices in forested regions along highways is one of the very best ways we know

to attract the attention of the people to the necessity of preventing forest fires. We would, therefore, like to have an order to the effect that such notices may be posted along highways which run through forested regions.

Another matter which has come to our attention and which we believe can be remedied through your Department is the matter of supervisors brushing out their rights of way and then permitting the brush to lie along the side of the road and to become the source of forest fire. Our recent law makes it possible for us to declare such a condition of affairs on private land a public nuisance and when so declared, the private individual must abate it. As we understand it, all supervisors are now under the direction of your Department, therefore we believe that officials connected with the development of roads ought not to lay themselves open to blame along this line. We have received several letters complaining about this matter. We believe that at a very slight additional expense, and as we know from experience in some instances for less expense, the brush which is cut could be properly piled and burned, and in this way the rights of way could be kept clean and free from inflammable condition.

The third proposition is in the matter of getting the assistance of your patrolmen in reporting forest fires to our fire wardens. Your men are on the job all the time and are salaried men. Many of them have stretches of road to look after from which they can get wide views of adjoining territory. Unfortunately our appropriation does not permit of the employment of salaried men for the purpose of watching for forest fires. We do, however, have a system of fire wardens whose duty it is to extinguish fires as soon as they learn that fires exist. Your patrolmen can help in this matter simply by keeping their eyes open for forest fires in connection with their regular work, and then when they see them, by reporting them to our fire wardens. This arrangement would not take them from their work, will require very little of their time, and certainly will accomplish very much good and save the Commonwealth a considerable amount of money and the citizens of the Commonwealth a very great loss. We trust that we may have your co-operation in these matters.

Very truly yours,

ROBERT S. CONKLIN,
Commissioner of Forestry.

November 11, 1915.

Hon. Robert S. Conklin, Commissioner of Forestry, Harrisburg, Pa.

Dear Sir: I wish to acknowledge receipt of yours of the 9th instant addressed to the Commissioner, which has been referred to me, relative to the co-operation of this Department with the Forestry Division. In reply thereto would say that it will afford us pleasure to co-operate with your Department in every way possible, and in compliance with your request we are this day issuing a circular letter to our various District Engineers covering the points mentioned. I would be glad to have you call my attention at any time you should hear of any failure on the part of our assistants in co-operating with you.

With kindest personal regards, I am,

Very truly yours,

W. D. UHLER,
Chief Engineer.

November 11, 1915.

To Engineers:

Dear Sir: Complaint has been received from the Commissioner of Forestry that Forest Fire Posters have been removed by our forces. Please notify your superintendents and foremen that any signs posted by the Department of Forestry, with reference to forest fires, et cetera, should not be removed.

It is also requested that in brushing out along the roadside, the brush be properly piled and burned, in order to eliminate the source of many forest fires.

In this connection, you will also instruct your patrolmen to report to the Fire Wardens in their vicinity any forest fires they may observe.

Very truly yours,

W. D. UHLER,
Chief Engineer.

We have every reason to believe that such co-operation is going to result in a material saving of direct expense to the Commonwealth.

During the year 1915, this Department has been co-operating with the Pocono Protective Fire Association in Monroe county through our District Forester, John L. Strobeck. His report, so far as it relates to forest fires, is herewith presented.

REPORT OF DISTRICT FORESTER FOR MONROE COUNTY, 1915.

The spring fire season of the year 1915 was an unusually severe one. The month of April presented weather conditions favorable to devastation by fire by reason of prolonged high and drying winds and low precipitation. The dangerous period of time was rather short, owing to frequent rains during the month of May, but the fires which were most destructive originated at unprotected places, and at times when weather conditions were most favorable to their progress.

On Sunday, April 18th, after the forests had been exposed to high and drying winds for a number of days, a fire was detected from the forester's headquarters in the thinly populated part of eastern Barrett township. Immediate response was made to the call, but between 11:30 A. M., at which time it was first detected, and 4 P. M., the fire was carried in a direct course of five miles.

This was the most destructive fire of the year, covering an area of about 2,500 acres in Monroe County, and possibly 1,000 acres in Pike County. However, no timber of any commercial consequence burned, but destruction of the young growth of sprouts and saplings ranging from 4 to 12 years in age, the death of the small game, and refuge destroyed for that which survived, the humus destroyed, the very direct loss incurred by the owner of a house which burned, and by the Commonwealth of Pennsylvania which lost 20,000 pine and spruce trees in plantation form on State land, besides the cost of extinguishing the fire which amounted to \$377.68,—this is the toll exacted by a little carelessness no doubt on the part of some person who did, or proposed to do some illegal fishing.

Following is the estimated acreage by townships burned over in Monroe county during the spring of 1915:

Barrett township,	3,852½ acres
Coolbaugh township,	188½ acres
Chestnuthill township,	150 acres
Hamilton township,	548 acres
Middle Smithfield,	302 acres
Paradise township,	22½ acres
Pocono township,	257½ acres
Price township,	2,000 acres
Smithfield township,	360 acres
Stroud township,	35 acres
Tunkhannock township,	5,335 acres
Total,	13,051 acres

Of the 37 fires which originated in the county, the following are or are believed to be the causes:

D. L. & W. Railroad,	10
Neglected camp fires,	2
Steam roller (hot coals),	1
Fisherman,	2
Wilkes-Barre & Eastern Railroad,	4
Brush burning,	2
Sawmill,	1
Pasture burning,	2
Lighted cigar,	1
Unknown,	12

Tunkhannock township suffered to be burned the largest acreage, although the greater part of this area is what is known as "huckleberry grounds." If it is possible to regulate these "huckleberry burnings" by the aid of existing laws relating to the prevention and control of fires, it should be done at the earliest possible time. The harvesting of huckleberries is a legitimate business and should be encouraged on such lands which are suitable and where it may be made a paying proposition, but at that point where the business abuses the rights and privileges of adjoining land owners, there regulation should begin.

There were 12 fires, the causes of which are listed by fire wardens as "unknown." Undoubtedly, a number of these may be attributed to the huckleberry business. It is very seldom that a person can be detected in a definite way who sets fire to huckleberry grounds. In justice to the owners, it may be said that they are rarely the cause of the fires being started. It is understood that it is usually done by individuals who desire the work or the opportunity to pick berries for the market.

Regulation could, no doubt, be effected under Duty of Chief Fire Warden (n) and (o), Section 102, Article I of the act establishing a Bureau of Forest Protection. An area held for the purpose of harvesting huckleberries and known as a place where fires originate, and where there is no attempt on the part of the owner to prevent the fire from communicating with adjoining lands, could, no doubt, be adjudged a public nuisance. The owner could then be advised to burn his area at such times as is necessary, and with sufficient help to prevent fires

from communicating with adjoining lands. He should also be advised to keep a patrolman on his huckleberry lands during dry periods of the year when there is an accumulation of leaf litter, dry weeds, etc., all highly inflammable.

This would make no large expense to the owner, since patrol would be required about four months only for every three years' rotation, or, a co-operative plan of some form probably would meet the condition. Regulation with regard to fire protection should not discriminate between lands leased for huckleberry harvesting or lands used for the purpose by the public free of charge.

A disproportionate number of causes of fires are attributed to the D. L. & W. Railroad. Nearly the entire number of these fires were small and were caught in their incipency. Four fires are attributed to the Wilkes-Barre and Eastern Railroad.

The railroads with rights of way through Monroe county cause more fires than any other agency. But it must also be remembered that this enterprise is fraught with more accidental setting of fires than any other agency through which fires originate. The D. L. & W. Railroad keeps its right of way comparatively free of inflammable material, but as much cannot be said of the Wilkes-Barre and Eastern Railroad. However, the railroad managements are in sympathy with the matter of fire protection and extend the aid of their section men whenever it lies within their power to help, and whenever a request for their help is feasible. I would again press to your notice, as in a former report, that a patrol maintained by the railroad managements along their rights of way is the only feasible manner in which the loss from forest fires caused by the railroads can be reduced.

The amounts paid by the State for Monroe county, as expense incurred for fire protection and extinguishment during the spring season are as follows:

Extinguishment of fires,	\$747 98
Patrolmen's salaries,	300 50
	\$1,048 48

One of the patrolmen was located in Wayne county, although a considerable part of his patrol region extended into Monroe county.

The Department of Forestry continued in co-operation with the Pocono Protective Fire Association in the matter of maintaining patrol service for the county. While the Department expended \$25.00 per month each for the seven patrolmen employed for the first month of the spring season, and the same amount for each of six patrolmen for the second month, the Pocono Protective Fire Association supplemented the salaries of three patrolmen to the extent of \$25.00 each per month, while in case of two additional patrolmen, \$25.00 per month additional was paid each of them by Mr. Henry S. Cattel and Mr. Norman Hoffman. The remaining two patrolmen for the first month and the remaining one patrolman for the second month served at the rate of \$25.00 per month.

Although the fire season was unusually severe, yet the patrolmen extinguished nine fires with no other help, by catching the fires in their incipency. In case of a fire of any consequence, the patrolman has always been found to take prompt measures to extinguish it, and with a few trivial exceptions, has done this work well.

A few changes in the personnel of the fire wardens were made during the spring. Efforts are being made to have only such men occupy the office who are capable and who will attend to the duties of the office irrespective of their daily vocations. We may expect frequent changes, since the office is one which a man must consider secondary to his ordinary way of gaining a livelihood. However, the grade of men who are fire wardens in Monroe county runs high, due to the interest which has been aroused in the matter of fire protection.

The second annual dinner was given to the fire wardens under the auspices of the Pocono Protective Fire Association at Buck Hill Falls Inn on the 20th of April. Twenty-three out of a possible thirty wardens were present. Mr. Geo. H. Wirt represented the Department of Forestry at this meeting, and the occasion was one of enlightenment in the matter of law, the routine which is necessary to handle the system, general intelligence regarding the objects for which the association is striving, and the duties incident to the office of fire warden.

The meeting was held at Buck Hill through the courtesy of Mr. Thompson, manager of the Buck Hill Falls Company, who is a director of the association. As an instance of his interest in the work, he obligated himself a host to the gathering. For the success of the meeting, Dr. Wm. R. Fisher, Secretary of the association, handled arrangements in his usual efficient and thorough manner.

At a meeting of the Directors of the Pocono Protective Fire Association held in March, it was directed that the secretary confer with the district forester in the matter of devising a poster on which shall appear the names and addresses of the fire wardens of the county; also a poster of a precautionary nature relative to the setting of fires. In accordance with these instructions, we prepared a cloth poster, on which about one-half of the space was left blank. In this space I inserted with rubber type the names of the fire wardens of a given locality. About 400 of these posters were prepared during the summer for the various districts of the county, and with the aid of the patrolmen and a few wardens, practically the entire county was posted. These posters are giving entire satisfaction with the exception of the quality of ink used.

The other poster was made of card board, and about 900 were placed along with the others.

Permission was obtained from the State Highway Commissioner to tack the posters along State Highways. A copy of the correspondence is on file in your office. This was a concession of considerable advantage, since the absence of advertising matter made the posters all the more conspicuous. And besides, it determined the legal status of issuing and placing before the public, information and educational matter prepared by the Association.

The posters were distributed in anticipation of the fall fire season.

During the early part of September, I was instructed by the Chief Forest Fire Warden to reorganize the fire warden system in Monroe county, and such parts of Pike, Wayne, Lackawanna, and Carbon counties as directly affect our work in Monroe county, so as to conform to the provisions of the new Forest Protection Code.

The reorganization in Monroe county and preparation for the fall fire season were begun at the same time. At the present time, there remains one warden who has not received his certificate of appointment under the new law. Before the end of the year, the system will be completely reorganized in Monroe county.

The fire wardens and assistants under the old law were given preference in reorganizing, and were offered the position of local warden. When a vacancy occurred, I recommended an appointment, subject to the approval of the secretary of the Pocono Protective Fire Association.

Instructions were received from the Chief Forest Fire Warden that he will expend out of the fund set apart for fire protection, \$25.00 per month for the employment of six patrolmen as long as their services are required for the fall fire season. The same arrangement for their employment was made with the Pocono Protective Fire Association and with individuals as was made in the spring. The patrol at South Sterling, Wayne county was discontinued and an appointment was made for the Long Pond region.

The patrol service was maintained for a period of two months. Conditions favorable to forest fires were present at frequent intervals during the entire fall season; but no long periods of dry weather prevailed as during the spring season. Consequently, only three fires occurred, and one of these was rather in the nature of prevention than of extinction. On the night the Water Gap House was destroyed by fire, patrolman Wallace deemed it expedient to take proper precaution by employing a sufficient number of men to extinguish fires due to flying embers, as they started in the woods from time to time.

The following is a summary of the fires which occurred during the fall season:

Number of fires,	3
Estimated number of acres burned,	4 $\frac{1}{2}$
Number of fires extinguished by patrolmen with no extra help,	1
Cost of patrol service to State,	\$300 50
Cost of fire extinguishment (fire bills),	28 10
Total cost of fire protection for fall of 1915,	<u>\$328 60</u>

Causes:

D. L. & W. R. R.,	1
Wilkes-Barre & Eastern R. R.,	1
Burning building,	1

The following is a summary of fires which occurred in Monroe county during the year 1915:

Number of fires reported,	40
Estimated number of acres burned,	13,055 $\frac{1}{2}$
Total cost of extinguishment (fire bills),	\$747 98
Cost of patrol service,	601 00
Total cost of fire protection to Department (not including District Forester's salary and expenses),	<u>\$1,348 98</u>

Causes of fires during the year 1915 in Monroe county:

D. L. & W. R. R.,	11
Neglected camp fires,	2
Steam roller (hot coals),	1
Fisherman,	2
Wilkes-Barre & Eastern R. R.,	5
Brush burning,	2
Sawmill,	1
Pasture burning,	2
Lighted cigars,	1
Burning building,	1
Unknown,	12

The total amount expended by the Department of Forestry and the Pocono Protective Fire Association under the existing co-operative agreement (District Forester's salary and expenses excepted) is as follows:

Department of Forestry, fire bills and patrolmen's salaries, ..	\$1,348 98	
Pocono Protective Fire Association, patrolmen's salaries:		
From treasury,	\$319 88	
Paid by individuals,	200 00	
		519 88
		\$1,868 86

The annual report of the secretary of the Pocono Protective Fire Association is attached hereto. It will show that expenses other than for patrol service have been met by the association to the extent of \$183.18. Thus, the amount expended by the Department of Forestry for the county of Monroe in the matter of forest fire protection and the Pocono Protective Fire Association, the only other authorized agent, other than individuals, in the county with funds to expend for the purpose, will total \$2,052.04.

Our patrol system has attained that state of usefulness during its two and one-half year's work which should guarantee its permanency. The Pocono Protective Fire Association considers the patrol system to be its chief burden of maintenance and the greatest factor in its tangible work.

The position of patrolman has attained that prominence in Monroe county where it is regarded as a position of public trust. Complaints relative to patrolmen are common, but this fact is evidence of a public interest in the matter of protection. The patrolman's position is one to which people of the forested regions are now looking for results.

The cost of extinguishing fires amounted to almost \$150 in excess of the cost of patrol service to the State. It is a reasonable proposition that if a patrolman had been stationed in that region of Barrett township where the fire started on April 18th and cost \$377.68 to extinguish, the fire might not have originated, or, at least, would not have been so difficult to suppress.

Practically the same conditions existed in connection with nearly all the large fires. My observation and experience point to the fact that the farther the patrol service is extended in Monroe and adjoining counties, by so much the more will the expenses and loss incident to forest fires be reduced.

During the month of May, patrolman Shaller, stationed at Mount Pocono, opened a subscription for the purpose of building a look-out to increase the range of vision over the outlying regions. The boarding house proprietors readily subscribed the amount necessary for its erection. While serving as a fire observation tower for the patrolman, at the same time the guests at the various inns will see in it an added attraction in the way of affording a view of the surrounding country.

I made plans and specifications for its erection, and helped to erect it. At this time, I desire to commend the aggressiveness and industry of our patrolman at Mount Pocono, through whose activity the proposed look-out became an actuality. A small deficit was met by the Pocono Protective Fire Association, and the look-out became its property on completion.

Patrolman Primrose built a look-out at Resica which serves the purpose of viewing the outlying regions. This look-out also became the property of the Pocono Protective Fire Association because of its erection by an employee under the co-operative agreement. Both look-outs are rustic wooden structures.

During the fall of the year, Mr. J. A. Seguire, of Cresco, a director of the Pocono Protective Fire Association, obligated himself to the task of raising a fund for the erection of a look-out tower on Cresco Heights, to be used as an observation station by the patrolman in the Cresco region, provided I make plans and specifications and superintend its erection. With little difficulty, Mr. Seguire raised a sufficient amount to cover expenses. The boarding house proprietors were willing to subscribe, for the reason that a look-out at this point would be an attraction to their patrons. Since the look-out is erected, their views are amply justified in consideration of the number of people who climb the mountain to see the surrounding country from its height. Two loads of round poles were furnished free of charge from State land.

The look-out tower is built of round timber, concreted in the ground, and has three platforms and winding stairs. My plans and specifications were followed throughout its construction, and patrolman Wilson had charge of the work.

The reorganization of the fire warden system proceeded rather slowly in counties other than Monroe, owing to the press of other matters. However, parts of Wayne, Lackawanna, Carbon, and Luzerne were visited, and in every case where I made recommendation of an appointment, the person recommended was first interviewed personally. The men serving under the old law were given preference in the matter of recommendation for the position under the new; but lack of interest was especially noted, and in a certain few cases, the men had actually forgotten that they were fire wardens. In some cases, hotel proprietors held the office, which was not conducive to the best interests of the work. Others were poorly districted. Dissatisfaction was evident in many instances concerning pay for fighting previous fires, due principally to ignorance as regards the routine through which the business is conducted.

Thirty recommendations were made for the counties other than Monroe for release, appointment, and retention of certain men. Of course, many more were interviewed.

It is hoped that when the spring fire season opens, these counties will be completely reorganized, and that direct supervision of the work will result in a very much more capable and efficient personnel.

It is not necessary at this time to dwell upon the importance of adequate facilities for the prosecution of this work of reorganization. I know that the lack of the necessary funds is responsible for the lack of convenience. It is to be hoped that the means will be at hand before long so that suitable office equipment can be obtained, proper transportation facilities may be had, and experimental work carried on to a certain extent. My transportation was obtained at a personal loss, since my allowance was not sufficiently large to cover expenses incident to the operation of an automobile.

If my office is to be headquarters for this reorganization, there is much need for an assistant next spring so that the work on the State Forest does not suffer. The personnel of the State Forest staff is such that nothing in the way of management can be expected of them.

As regards the matter of reorganization, it is suggested that F. P. B. Form 2 be placed in the hands of the District Forester who shall see to the matter of their being returned to the Chief Forest Fire Warden, duly filled out. This would relieve a source of misunderstanding and delay in many instances.

This report brings out clearly the value of observation towers and patrolmen. Prevention surely pays better than mere extinction and it is along the lines of prevention that our activities must be more earnestly directed.

That the idea of prevention is taking hold of the people as a result of our work in Monroe county is evidenced from the following statement in a letter from one of the patrolmen.

"I am opening many roads and fire lines on the eight thousand acres of private land of which I have charge. As our service was of so much good, the property owners are begging to assist in the way of opening roads and lines. We also have the use of several towers."

The forest fire work of R. Lynn Emerick as District Forester for Potter county was mostly confined to an educational campaign and a partial reorganization of the fire wardens. In townships where no fire wardens were located, capable men were recommended for the position. Practically every fire warden was interviewed and instructed in the proper manner of filling out the bills and reports. They were also strongly urged to get out to fires immediately and not to wait until they had burned several hours.

A list of the wardens with their addresses and telephone numbers was widely circulated throughout the county. Over two hundred and fifty fire notices were posted in prominent places, such as stores, blacksmith shops, railroad stations, and on any public place where permission was granted to place them. The fire stickers were distributed to merchants and placed on ammunition boxes and fishing tackle. It appears that the spring is the most severe fire season in this county.

In northern Centre county, the Central Pennsylvania Forest Fire Protective Association is operating with headquarters at Snow Shoe. One of our State foresters, George W. Sheeler, is its secretary, and in addition to his work on the Snow Shoe State Forest, looks after the fire protective work of this association. This Department paid to the Association during the year \$225.50 for patrolmen and \$46.85 for other purposes.

The region covered by the association is a difficult one to protect because of its few inhabitants and the lack of facilities for rapid communication. But, as its objects and activities are better understood, better results are being accomplished. Only a few of the timber land owners within the region are members of the association, with the result that much non-association land must be protected in order to protect association land. This is unfair and some means must be found whereby those who desire to protect themselves must not be made to bear the expense of protecting the land of careless and indifferent owners.

Mr. Sheeler reports as follows:

"GENERAL SURVEY OF THE FIRE SEASON.—The spring weather conditions were not favorable to a campaign against forest fire, unusually dry and strong winds blowing most of the time. This was the condition of the weather

for 22 days during the month of April. Nearly all the fires occurred during this time. However, through such an unfavorable period the association withstood the trying ordeal, stopping many small fires and controlling and even extinguishing large ones that might have proved wide spread, raging conflagrations of forest land in this vicinity. The arduous task the wardens and patrolmen had before them at this time and their persevering efforts have been very favorably commented upon. The fall weather conditions were not so dangerous as those of the spring season, hence no fire of consequence occurred. With the exception of the several fires originating from the careless burning of the N. Y. C. R. R. right of way, the efficiency of this association under such tests as it has been put to this last year has proved successful.

"PATROL WORK.—Eleven patrolmen were employed to keep watch during the spring and fall fire seasons. Patrol duty extended for a period of one month, patrolmen receiving for their services \$25.00 per month. Four small fires were extinguished by these patrolmen while on duty. Besides the above patrol, fourteen fire wardens and one forest ranger assisted in the work of extinguishing forest fire. The results accomplished by this system were 43 fires extinguished, one fire scare, and two fires attended but not included in association confines. By the activities directed along this line, forest fires have decreased in number, the cost per acre for extinguishment has decreased proportionately, and there has been a reduction of area covered per fire.

"PERMANENT IMPROVEMENTS.—The telephone line from Snow Shoe to Spruce Run has been completed. This extends over a distance of 8.5 miles. Two more telephones were hung on the line this year, making four in all.

"About 95 miles of old roads used by the lumbermen at one time have been mowed out and kept up. The purposes of these are to afford easy and quick access into the area and a barrier to an approaching fire. We need more roads of this type for they are absolutely essential to the efficiency of association work.

"PUBLICITY.—On March 31st, 1915, at Snow Shoe, Hon. S. B. Elliott, member of the Forestry Reservation Commission of Pennsylvania, delivered an address on Forestry before a large and enthusiastic audience. He pointed out the immediate needs for forest fire prevention in this area. He also advocated the planting up of many existing areas where there is no desirable growth present and none in sight. He showed that planting was a good business investment.

"Warning posters were placed in conspicuous places all over this area. Wherever conditions for forest fires existed, such as sawmills, camps, dinkey roads, railroads, etc., the owners or managers of these were notified separately about the possibilities of forest fires and how easy it is for them to control them. As a result of these notifications, many fires formerly due to these sources have been eliminated.

"Forestry talks at public and private gatherings and articles for the county newspapers were used to bring attention to existing conditions. A campaign by mail for membership was instituted. The results have been gratifying but it behooves every land owner in this area who is not already a member to become one at once. For it is to be remembered that fire prevention is good insurance, insurance is foresighted business, foresighted business is established on what has and can happen. Thus we see forest fire prevention is foresighted business. Its value is shown in accumulated forest growth, and many benefits resulting therefrom.

"CO-OPERATION.—Many fires have originated along the right of way of the railroads in this territory. They are due to carelessness on the part of the employees, injured spark arresters, and indirectly to the heavy grades on roads across the area. The N. Y. C. R. R., by the request of the association, has burned along their right of way a strip about 300 feet wide, for a distance of 26 miles. Barring

the irresponsible labor for an operation of this kind, the idea is a splendid one. However, the railroad, in the future, must guarantee a safe burning if the intended good is to be realized.

"By request from individuals, information concerning trees, forests, and their particular problems was furnished free.

"FOREST FIRES.—Forty-three fires occurred on this area in the year 1915. In an effort to find the real cause for these fires, we have divided them into three classes:

1. Carelessness (unintentional).		2. Intentional.	
Railroads,	13	Set for pasture,	3
Clearing land,	5	Spitework,	2
Dinkey,	2	Purposely by tramp,	1
Hunters,	3		
Fishermen,	2		
Smoking,	3	3. Unknown,	4
Other causes,	3		
Old coal mine,	2		

"SUMMARY OF THE WORK ACCOMPLISHED.—

1. Greater efficiency in the work of the association.
 - a. Decrease in number of fires.
 - b. Decrease in cost per acre extinction.
 - c. Decrease in area per fire.
2. Patrol work more efficient.
3. Warden work more efficient.
4. Telephone line completed. Two more telephones added.
5. Ninety-five miles of old roads were worked on.
6. Greater efforts in publicity were made. A systematic distribution of forest literature.
7. Co-operation with railroads and individuals. Twenty-six miles of railroad right of way burned.
8. Increase 10 per cent. in membership.

In Berks county, we have co-operated with the Berks County Conservation Association and in the spring of 1915, paid out \$120.25 for patrolmen. The secretary of the association looked after the forest fire matters generally within the county, and as a result, we believe that the loss from fires was materially reduced.

During the year, efforts have been started towards protective associations in Clinton county and northern Dauphin county.

In a number of places, our foresters and fire wardens have been able this year to co-operate with railroad officials, or to bring about co-operation between land owners and railroad officials so that miles of fire breaks have been burned along railroad rights of way. One very notable example of this work was accomplished in Centre county along the Bellefonte Central Railroad. The following agreement was drawn up and signed by seven owners of land along the right of way:

State College, Pa., October 11, 1915.

To insure better protection from forest fires, which annually destroy thousands of dollars worth of timber and property in Pennsylvania, we, the undersigned owners of timber and woodland adjacent to the right of way of the Bellefonte Central Railroad in the territory known locally in Centre county as "The Barrens," hereby grant permission to the said Bellefonte Central Railroad Company to burn over such a strip of our woodlands adjacent to its right of way as will make a distance of 100 feet on each side of the centre of the said railway track; such a strip to be burned over by the said Railroad Company in the spring and fall of each year when the danger from forest fires is greatest or oftener when the danger from forest fires is such that the State Department of Forestry shall order the said strip to be burned over; it being further understood that this permission is granted for a period of ten years from the date hereof and that the said railroad company will use all care in the burning over of such a strip so as not to endanger the adjacent woodlands, or destroy any fences or other property not belonging to the said railroad company.

We find that most of the railroad companies are willing to do their share in thus preventing fires but that private individuals will do nothing themselves and will not grant permission to the companies to do anything toward making a safety belt along the dangerous stretches of track.

The following agreement was entered into between the President of State College and the Department of Forestry through our forester, Mr. Ludwig:

State College, Pa., October 14, 1915.

To aid in the suppression and extinction of forest fires, the Pennsylvania State College through its Forestry Department will co-operate with the Pennsylvania Department of Forestry along the following general lines:

1. When the men engaged in extinguishing local forest fires, either upon the State Forests or private woodlands, are unable to get the fire under control, the Fire Warden in charge will call upon the Professor of Forestry of the Pennsylvania State College for assistance, it being understood that the Fire Warden will first summon the available men in the vicinity of the fire and only send such a call for assistance when this local force is unable to control the fire. The Professor of Forestry will then, according to his judgment, call out as many of the forestry students as are desired and available, and place them under the direction of the local Fire Warden.

2. Forestry students assigned to such work will be excused from classes and other college exercises for a reasonable period and will receive credit for such absences. Other students will not be so excused.

3. No remuneration for labor services will be given but the Pennsylvania Department of Forestry will make arrangements for conveyances and provisions.

The Pennsylvania State College,

EDWIN E. SPARKS,
President.

The Pennsylvania Department of Forestry,

WALTER D. LUDWIG,
Forester.

For several years, a number of the railroads have been co-operating with us in posting forest fire warnings on their bulletin boards, and printing forest fire warnings upon their schedules and upon other printed material. The Pennsylvania Railroad Company has just issued a small card giving instructions upon the Method of Piling Cross-ties for Inspection and on the back of the card is printed the following:

TO PREVENT FOREST FIRES.

Please do not be any less careful with fire in or near the woods than you are with fire in your own barn, home, mill, or office. Nor loaf when you discover a fire in the woods; if you can't put it out yourself, get help promptly. Where a forest guard, ranger, or fire warden can be reached, get word to him.

Please do not throw your match, cigar or cigarette away until you are sure it is out. Nor knock your pipe ashes while hot out of car windows or where they will fall onto dry leaves or other inflammable material.

Please do not fail to get a permit from a warden or a property owner wherever one is required by law before bush or camp fires may be built. Nor use fire in or near the woods unless absolutely necessary. Never build a fire any larger than is absolutely necessary.

Please do not burn brush or refuse when the wind is high or the woods dry enough to burn. Nor build a camp fire against a log, a stump, or a tree, or anywhere but on bare soil. Never leave a fire until you are sure it is out; if necessary smother it with earth or water.

Please do not forget that thoughtlessness and negligence cause more than half the forest fires, and that the smallest spark may start a conflagration that will result in loss of life and destruction of timber and young growth valuable not only for lumber but for their influence in helping to prevent flood, erosion, and drought, and to preserve wild life.

Most of the railroads have issued very definite instructions to their men with reference to being careful not to cause forest fires and to extinguish them when within a reasonable distance of the right of way. The unfortunate circumstances are, however, that the enforcement of such regulations is very lax upon some divisions because of a lack of interest on the part of those officials entrusted with this enforcement. Where the various local officials can be interested in forest protection, there is little trouble with railroad fires.

In many other directions, our foresters and fire wardens are accomplishing good results by co-operating with private individuals, water companies, lumber companies, and so on.

The support which we have been receiving during the past year from the sportsmen of Pennsylvania is worthy of note. In several counties, the local organizations have had printed at their own expense, and distributed, a number of forest fire posters.

The Blair county organization has been particularly active in this direction, having placed about 500 cloth posters upon which was printed:

NOTICE!

FOREST FIRES!

Please help to preserve our forests by being careful with fire in the woods. If you see a small fire, put it out! Watch your pipe, cigar and cigarette ashes. Put your camp fire out! Large fires are small ones neglected. Every citizen of Blair County should be vitally interested in the preservation of our forests.

In addition to being a source of lumber, our forests are necessary as protection to our water supply, our game, our fish, and our song and insectivorous birds. Who wants to see Blair County barren of trees? We don't! If you see fire that you can't put out, notify the nearest State Fire Warden. If you can't locate the Fire Warden, call up the Blair County Game, Fish and Forestry Association, John H. Winters, President, 1609 Eleventh Avenue, Bell Phone 250, Altoona, Pa.

In the little booklet containing the constitution and by-laws of the Association, and upon other printed matter, there is direct reference to forest fires and the necessity for their prevention and suppression.

The Press of the State, generally, is willing to co-operate with us in educating the citizens about forest fires and are simply waiting for material to print. In many parts of the State this past fall, they have been very glad to publish lists of forest fire wardens for the benefit of their patrons as well as other material relating to forest fires.

A field for co-operation which has not been taken advantage of as yet, but which will be used as soon as the list of wardens is published, is authorized in the following order and letter issued to postmasters by Postmaster General Burleson.

POST OFFICE DEPARTMENT.

Washington, D. C., July 12, 1915.

The attention of postmasters and rural and star route carriers is directed to the following order, which should be carefully observed:

ORDER NO. 9006:

The following instructions are promulgated for the guidance of the postal employees concerned:

In accordance with the request of the Secretary of Agriculture, this Department has arranged a plan of co-operation with the State and National Forest officers whereby rural and star route carriers shall report forest fires discovered by them along their route to persons designated by the State and National authorities to receive such intelligence.

Co-operation with State officers will be given in all States which have established by law a system of forest fire protection.

Co-operation will be furnished National Forest officers in all states containing National Forests.

The State and National authorities will inform postmasters as to whom the discovery of fires should be reported, and each rural carrier should be directed to co-operate to the fullest extent with such authorities in the manner agreed upon, namely, that the carrier shall report a fire to the nearest State fire warden or National Forest officer on his route, or, if no such warden or officer lives on the route, to arrange through some responsible citizen to have him notified, by telephone if possible. Star route contractors and carriers are included in the plan of co-operation and should be requested to report the discovery of fires in the same manner as will be done by the rural carriers.

Postmasters in or near National Forests are also directed to report fires to the nearest forest officer.

A. S. BURLESON,
Postmaster General.

(This order was published in the August supplement to the Official Postal Guide, page 2.)

OFFICE OF THE POSTMASTER GENERAL.

Washington, D. C., September 7, 1915.

Hon. D. F. Houston, Secretary of Agriculture.

My dear Mr. Houston: In response to the request made in your letter of the 27th ultimo, I am inclosing a letter, copies of which may be used by Federal or State forest officers in transmitting to postmasters warning notices relative to forest fires.

Very truly yours,

A. S. BURLESON.

OFFICE OF THE POSTMASTER GENERAL.

Washington, D. C., September 7, 1915.

Postmaster: This Department will approve of your having the accompanying notice, relative to forest fires, posted in a conspicuous place in the lobby of your office.

If your office is located in a government building you should submit promptly to the Secretary of the Treasury your request for authority to place the notice in the lobby.

A. S. BURLESON,
Postmaster General.

The co-operation which must be had with our citizens and which may be had with some effort is well set forth in a report submitted by forester V. M. Bearer upon a protection system which he found to have been organized in western Pennsylvania by forest fire warden, E. C. Myers, of Mount Pleasant.

"The region covered includes Mount Pleasant borough and Mount Pleasant township, Westmoreland county, and Bullskin township of Fayette county. It is divided into ten so called "districts," with definite limits, as follows:

Westmoreland County:

- District No. 1. Between County Line Road and Stone Pike.
- District No. 2. Between Stone Pike and Jacobs Creek.
- District No. 3. Between Jacobs Creek and the Snyder Road.
- District No. 4. Between Snyder Road and Clay Pike.
- District No. 5. Between the Clay Pike and Bear Rock Road.
- District No. 6. Between Bear Rock Road and Mike Johnson Road.
- District No. 7. Between Mike Johnson Road and Catholic Church Road.

Fayette County.

- District No. 1. Between the County Line and Greenlick.
- District No. 2. Between Greenlick and Mounts Creek.
- District No. 3. Between Mounts Creek and Stauffer Road.

Several "Fire Companies" of ten to fifteen men, including a captain, are formed. Each of these companies keeps strict watch for fires in the one or two districts which are assigned to it and immediately upon discovery of a fire they set out to combat it. The various companies co-operate and unite their forces when necessary, as in case of a wide spreading fire with a prevailing high wind.

Though other companies are quick to offer assistance to the one engaged in combating forest fires, usually the fire is under control by the time they arrive. This immediate control of fires is effected through the several companies of "Minute Men," as it were, who are ever ready and prepared to respond to the call of fire. They are so distributed over the locality as to bring every point within easy reach of at least one company. Their locations are as follows.

- Co. "A" Laurelville.
- Co. "B" Acme.
- Co. "C" Byerly's School House.
- Co. "D" Kecksburg.
- Co. "E" Lycippus.
- Co. "F" Greenlick.
- Co. "G" Bear Rock.

These companies include men whose foremost thought, when they learn of a fire, is to control and extinguish it. They act accordingly. Often the fire will be under control by the time the fire warden arrives.

Here, in this community, is found that spirit which is so essential in the prevention and control of forest fires and which must be created throughout the entire State of Pennsylvania before our fire protection system can approach perfection; before we can be well protected from this most destructive enemy of the woods.

It is the spirit within the people, in general, to offer their assistance regardless of what the "rate" or "wages" may be. Compensation is a secondary, if any, consideration. The citizens realize that the fifteen cents per hour which they have

been paid in the past is little or nothing in comparison with that which they preserve and protect from fire. They realize, too, that, although their efforts to preserve the forests result to some extent in benefitting the Commonwealth, they, themselves, receive the lion's share of the benefits.

Neither do they attribute the value of a forest entirely to the wood products which it yields. Its uses and value as a hunting ground and place of recreation; as a region where the fisherman may find his joy; and where the invalid may seek health and become convalescent; as a preventive of serious floods to some degree and a source of continuous water supply, as well as the labor, business, and prosperity that are assured the community through the harvesting of the timber, are understood and appreciated in this locality.

The people are always ready to volunteer with their services. They provide fire fighting tools and frequently furnish teams and automobiles to reach the fire quickly. In brief, these people are willing to help the State help them.

While the liberal services of the community are fully appreciated, special credit must be given fire warden E. C. Myers, of Mount Pleasant and his assistants for their efforts in organizing the fire companies and for securing the co-operation of the citizens."

EDUCATIONAL ACTIVITIES.

There is still a woeful ignorance abroad in the State both as to the loss occasioned by forest fires and as to the means the State is taking to suppress them. Many people still find fault with the State Fire Marshal and his deputies for not paying attention to forest fires. Others who should know better, apparently have never heard of the Department of Forestry. At a recent meeting of the State Firemen's Association in Philadelphia, newspapers reported that, as there was no organization to look after forest fires, it was proposed to ask the legislature for \$500,000 a year for the organization of a force under the State Fire Marshal. This was either inexcusable ignorance or a play to the gallery. To the public, it was exceedingly misleading. One of our efforts during the coming year must be toward letting the people of the State know that a forest fire protective organization does exist and that with even less than one-tenth the amount proposed by the firemen, it is doing its very best to protect the interests of the Commonwealth.

Since September 1st, the publicity matter put out includes a revision of Circular 12 of the Department, a 7 x 9 inch sheet printed on two sides.

Circular 12 (Revised).

PENNSYLVANIA FOREST FIRE FACTS.

Five hundred thousand dollars is the average annual direct loss from forest fire within Pennsylvania. Sometimes it amounts to over \$1,000,000.

Five million acres of land are being kept non-productive by forest fire. Such an area is capable of producing from 200 to 500 board feet per acre each year, or a total of at least 1,000,000 thousand feet board measure.

Twenty dollars is paid as wages for the harvesting and manufacture of each thousand feet of lumber, consequently the loss to labor each year is at least \$20,000,000.

The Commonwealth loses in taxes because of this non-productive area assessed at an average of \$3.00 at 20 mills, but capable of yielding twice the amount upon a fair taxation of one-tenth the value of the annual production, a total of at least \$300,000. The owner is more satisfied if he can pay taxes from his yield rather than from his capital stock.

The increase in amount of wages paid would mean increased prosperity to many people.

Forest fire destroys the humus of the forest floor, which is the natural reservoir and filter of our water supply. When this reservoir is destroyed, the water supply becomes irregular and uncertain. When the filter is removed the water becomes impure and unsafe.

A people's health is directly dependent upon its water supply, and the water supply upon the forest humus. Forest fire, by destroying forest humus, seriously affects the health of our people.

The cost of disease and death from impure water is enormous and cannot be calculated in dollars and cents.

Loss of life occasionally results from forest fires.

Green trees are a promise of future prosperity, health, and happiness. A forest fire may destroy in an hour what has taken years to develop.

In order to lessen this loss to labor of from \$20,000,000 to \$25,000,000 and to insure a present forest value of at least \$140,000,000, the Legislature appropriated \$45,000 for two years' work of prevention and extinction of forest fires, an amount by no means sufficient. \$100,000 per year is nearer what is needed, and more in accordance with what other States are giving. However, a reorganization of the forest fire prevention system has been authorized and is now being accomplished. Prevention and co-operation are strongly urged upon every citizen. Let us have your help.

October 15, 1915.

On the back of the circular is printed the same material as was on our 14 x 22 inch poster, first put out in September, 1913. The poster was widely distributed and since its issuance, several editions of this circular have been used to good advantage.

STOP Forest Fires

They are a Curse to the People of
Pennsylvania

**FOREST
FIRES
DESTROY**

Existing Forests
Possibility of Future Forests
Possibility of Labor
Game Animals and Game Birds
Beauty of a Region
Comfort
Homes
Lives
Prosperity

Protected Forests Increase in Value

They Furnish Labor, Promote Industry, Afford Recreation and Sport, Make a Region Beautiful, Make Homes Safe and Comfortable, Make Life Worth Living, and a Prosperous State Inhabited by a Contented and Industrious People.

Which Would You Rather Have

FOREST FIRES
FLOODS
DISEASE
DESTRUCTION
DEVASTATION

OR

GREEN FORESTS
PURE WATER
HEALTH
THRIVING INDUSTRIES
PROSPERITY

In case of fire, put it out if you can. Send for help if needed,
Notify the nearest forest fire warden.

For Information Respecting Pennsylvania Forests and Forestry,
Write to
COMMISSIONER OF FORESTRY,
Harrisburg, Pennsylvania.

On the back of Department form 13, which is sent to all timber cutters for the 1915 timber cut statistics, the following information was printed:

PROTECT FORESTS FROM FIRE.

When individuals cannot do what is necessary for society, the State steps in. With its own land the State recognizes that protection, largely from fire, is the first principle of sound forestry practice. But the State owns only about 1,000,000 acres of land. Conditions in Pennsylvania are such to-day that this small proportion of its total area could not possibly bring about the satisfactory conditions which can come and be maintained only by a proper forest area. Neither is it probable that the State will or ever can own enough forest land to bring about a proper equilibrium. Therefore, it recognizes its duty in the matter of protecting the general forest area within its boundaries from its worst internal enemy, forest fires. But this recognition is only in law, not in fact, for at no time in the past has there been appropriated by the Legislature an amount of money sufficient to make a reasonable insurance on the property represented.

What Forest Fires do in Pennsylvania.

1. *Fires cause the loss of human lives.* While the number of lives lost directly from this cause in Pennsylvania is small, yet some people have been burned to death and no one knows how soon others may be.
2. *Fires cause the loss of homes.* Not infrequently have forest fires furnished the spark that burned the house and possessions of families living within or near a forest.
3. *Fires cause the loss of fences, sheds, crops, stock, etc.*
4. *Fires cause the loss of felled timber.* Felled trees represent time and money. The further the process of manufacture is carried the more valuable the product. Every year thousands of dollars worth of logs, bark, cord wood for various purposes, ties, poles, posts, and sawed lumber is destroyed. The workman may be out his time or wages; the owner may be out the wages paid and the profits; the user must so much the sooner pay a higher price for his wood because the supply is decreased by just so much; the Commonwealth at large suffers because property is destroyed, everybody concerned is made poorer, and no further wages, taxes, or use are possible.
5. *Fires kill much growing timber.* Fire burns the bark of trees and heats the wood immediately below the bark. The living layer of wood is just beneath the bark. If the cells of this wood are heated to a sufficient degree they cease to do their work. If the tree is small, the fire hot, or the species a sensitive one, the tree is practically girdled and dies. Where leaves and brush are piled around trees, the fire may be sufficient to burn through or to make such a scar that the first strong wind will blow the tree down. Some trees are more sensitive than others. White pine, especially young trees, and beech are very sensitive. Pitch pine is very resistant. When the pines are killed by fire, roots as well as stem are dead, whereas most hardwoods may be killed above ground but remain alive below and send up sprouts again. Spring fires are more disastrous than fall fires.

6. *Fires injure much growing timber.* When the trees are large or the bark heavy and the fire light, not many trees are killed, but the majority are injured. The trees are only partly girdled, bark drops off on one side of the base, insects and fungi begin work, and succeeding fires continue to eat into the tree and finally destroy a good part of it or kill it.

7. *Fires destroy seeds, small seedlings, and sprouts.* Upon the forest floor, mixed with leaves and humus are many tree seeds of various kinds waiting for favorable conditions to germinate and grow into trees. In most cases where stock and fire have been kept out of woodland for several years, there are thousands of young trees started, but are hardly noticeable. Fire destroys all of these, as a very small amount of heat will destroy the germ within a seed, and cook the life out of the tender plants. Even the lightest fires do considerable damage in this way, destroying the germs of prospective forests.

By reason of the last three effects of forest fires, repeated burnings may change entirely the character of a forest in almost all of its phases, or forest conditions may be destroyed totally. The better species of trees may give place to fire cherry, quaking aspen, birch, or other light winged species. All tree growth may give place to scrub oak, sweet fern, huckleberry, bracken, or common annual herbaceous weeds. So it is reasonable to say that forest fires destroy forests and the possibilities of future forests.

8. *Fires destroy, wholly or in part, the litter and humus on the ground within the forest.* Light fires burn some leaves and small branches. Heavier fires burn everything down to mineral soil, some even following roots and other vegetable matter into the soil.

- (a) Forest litter and humus are a mechanical hindrance to the run-off of precipitation, allowing it to reach the stream slowly.
- (b) Humus absorbs and holds rains and melted snows, giving it to the soil for the underground supply which feeds springs.
- (c) Humus keeps the soil open, summer and winter, permitting it to take moisture rapidly.
- (d) Litter and humus act as a mulch preventing rapid evaporation of soil moisture.
- (e) Humus keeps the surface soil fertile, which helps to make good tree growth.
- (f) Humus protects the soil from erosion.
- (g) Humus is said to prevent the complete development of many injurious insects.

Changing humus to ashes eliminates all of the above benefits. Floods, erosion, irregularity and impurity of water supply both for home supply and for power, and all the calamities attendant upon these conditions are the results. The loss cannot be estimated in dollars.

The opening of the forests and the removal of humus by fire bring about conditions which make it easier for fires to rage. Each successive fire makes conditions more favorable for the next, until in time everything of value is destroyed and desolation results.

9. *Fires destroy game and fish.* Spring fires, especially, are fatal to young animals of all kinds, and many bird eggs are destroyed. Not infrequently both in spring and fall the water of some of the small streams has been heated sufficiently to kill fish. By destroying the factor which largely regulates the steady flow of streams and by making the banks of the streams bare of their natural protection, fish life is seriously affected.

10. *Fires cause a decrease of bird life.* Bird eggs and young birds are destroyed directly. By reason of frequent disturbance, birds are driven away from a region of forest fires. By the destruction of the forest and the making of desolate hills, conditions favorable to bird life are destroyed and birds become scarce.

Scarcity of birds adversely influences agriculture.

11. *Fires destroy the beauty of a region.* The beauty of certain regions is responsible for bringing to them millions of dollars each year. Green forests covering the mountains and keeping the streams steady and clear are the most important factors in the maintenance of this asset. Fires promote desolation rather than life and beauty. A fire swept region is anything but beautiful.

12. *Forest fires are calamities.* They destroy great values without the least compensating benefit, and the trail of loss in wages, industry, taxes, revenue, prosperity, sport, health, comfort, and even life, leads to every home in the land.

A PATRIOTIC SERVICE.

Such a condition of affairs calls for each individual to do his full duty whether as a private citizen or as an official, in helping to rid the Commonwealth of forest fires, and to prevent as far as he can the calamity which the fire fiend inevitably brings. Any one connected with this work who does his full duty as best he can, must necessarily feel that he is doing patriotic service and an altruistic work. The position of an officer intrusted with the duty of prevention and extinction of forest fires, should be considered as a mark of honor, trust, and faithfulness, but must be made so largely by reason of the efficiency of the men holding the position.

This statement previously had been printed upon the back of the forest fire reports (Form 15), and upon the back of forest fire loss reports (Form 17), the latter being the form heretofore sent to individuals who were reported as having suffered from forest fires.

Under the reorganization, our fire wardens are aiding in the placing of posters and in the distribution of circulars and stickers. In one instance in Bedford county, our warden was a tax collector, and in driving over his township, he used the opportunity to spread information about forest fires.

One of our wardens in a fire infested district in Fulton county reports as follows: "After receiving those posters and small circulars, I made a special trip over my township and posted those large cards in all stores and post offices and in several other public places. Just last week I took another day and visited all our public schools. I left with each teacher a large poster and instructed them to post it conspicuously on the inside of the school room where it would not get destroyed, and I left with each teacher sufficient of the small circulars to give a copy to each pupil of the school. I gave a little talk in each school such as I thought suitable, and urged each pupil to read every word and re-read it, and if there was anything they could not understand or could not read, to have the teacher, parents,

or some one else read or explain. I also asked the teachers to make themselves familiar with the contents of the circular before they handed them out and to give some explanation on them, as I thought a few words from the teacher might do more good than all a stranger might say." This warden also presented conditions to the District Attorney of his county, and spoke and wrote to others whom he thought might use their influence for good in this work.

As a result of his activities, he was hooted at, called all sorts of names, accused of wasting time and charging the State for it, and more or less annoyed in various ways. Anonymous letters about his educational activities were addressed to this office, but the gentleman is still a forest fire warden, and because of his interest and loyalty, we may expect a change of sentiment in his township before long. It is unfortunate that we do not have more wardens as energetic as he has been.

On October 22nd, I delivered an illustrated talk entitled "Burning up Millions," before the Alrich's Association in Harrisburg.

On October 27th, I attended a preliminary meeting for the organization of a Dauphin County Protective Association.

On November 5th, I spoke to the Blair County Game, Fish and Forestry Association on "The Prevention of Forest Fires."

On November 6th, I read a paper on the "Results of Forest Fires," at the annual meeting of the Berks County Conservation Association at Reading.

A paper on "The Telephone in Forest Protection" was prepared for "Telephone News," several short papers were prepared for "In the Open," and a few news items were supplied. The foresters themselves furnished material during the fall to their local papers.

Mr. Siggins delivered an illustrated talk on "Forestry" at Meadville, on December 29th, and received wide publicity in the Crawford county papers.

WORK FOR 1916.

In the coming year, there is a great amount of work that must be done in order to complete the reorganization of the forest protective system.

The force of wardens must be completed with the aid of foresters and others interested in the work.

As much as possible must be done to instruct the wardens in their duties, and to keep them interested. Where county organizations are complete, county meetings should be held so that the men may get to know each other and plan for co-operation. A forest fire warden's manual should be prepared early in the year.

Means must be found for letting the people of the State know who are fire wardens, and how the fire warden who may be needed can be reached.

Plans must be formulated for additional co-operation on the part of other branches of the State Government, timber land owners, various established organizations, and with any one who will help to prevent forest fires.

Rules and regulations must be drafted under which the railroads will do their share toward eliminating fire loss, and at the same time arrangements must be made for an extension of fire breaks along rights of way on a co-operative basis.

New protective organizations must be organized if possible.

The State must be districted according to wage scale.

The State must be districted for the future establishment of a system of outlook stations.

If possible, a start must be made upon the forest map of the State.

A general campaign of publicity must be carried on during the entire year by means of posters, circulars, news items, lectures, etc.

Needless to state, this is a large program but it is not all that ought to be done to put Pennsylvania where she should stand with respect to the protection of her forests.

FOREST FIRE DATA.

Your attention is called to the tables setting forth the information submitted to us by the forest fire wardens during 1915 and the summaries made therefrom.

Table I is a detailed statement of forest fires, showing date of fire, county and township, area, damage, cause, cost of extinction, and fire warden who submitted the report. That the data herewith submitted is incorrect goes without saying and what is presented is printed with the hope that fire wardens and others may be able to see just what information has been given to this office. It is evident that not nearly all the fires occurring in the State have been reported;

in some instances, no doubt, there are duplications, as where two fire wardens sent in separate bills for the same fire, or where the same fire was reported in different counties. It is earnestly hoped that under the new system, every fire will be reported and that there will be no duplication.

In the majority of cases our reports of area burned are mere guesses and consequently are not as definite as we would like to have them. In some cases, the estimate is too small and in others too large, but because of the number of fires which we know are not reported, it is fair to assume that the total area reported burned over is none too large. The same thing may be said of the reported damage.

It is hoped that with a better understanding of what is wanted and with some little practice, our fire wardens will come about as near to actual damage as it is possible under the circumstances. It is not infrequently found that damages are estimated with the idea of the State's reimbursing the owner for his loss, consequently the figure is high. Further, it is evident that the wardens pay too little attention to the matter and simply make a rough guess in order to answer the question.

Under the heading of causes, there are listed known and supposed causes. Many reports come in stating that the cause of a fire was "supposed to be" so and so. In other cases, a definite statement is made giving the cause. As a matter of fact, the listing of causes as we now have it is not satisfactory. Our wardens, in many cases, were not upon the ground soon enough after the fire to determine the cause with any degree of accuracy. In many cases, no particular effort was made to determine the real cause and, no doubt, in some cases, there was present in the mind of the warden the desire to shield his neighbor. At this point, there must be considerable improvement. There is no reason why the causes of at least 80% of the fires which occur should not be definitely known, nor why definite information concerning the person or persons responsible for at least 60% of the fires cannot be obtained. The enforcement of the forest fire law, to a large extent, hinges upon the faithfulness of the wardens in fearlessly reporting all facts available with respect to the causes of fires. Further, no prevention scheme can be completely organized until we know at least with some degree of accuracy the causes of fires which can reasonably be eliminated or so dealt with that the number of fires may be reduced.

The cost of extinction to individuals, as given in Table I., is only a small percentage of the actual cost. In several cases during the last several years, individual firms have spent over \$2,000.00 for fire extinction. But it seems to be impossible to obtain anything like

complete figures covering this expense. For the last twenty years, efforts have been made to get this information annually from the individuals suffering loss, but, on the average, not more than 60% of the forms sent out are even returned. The information obtained under such conditions is not worth the expense in getting it and I recommend that the sending of forms to individuals be discontinued.

It is believed that the publication of this table, with the name of each fire warden given in connection with fire data which he submitted will tend to put each man upon his mettle and make him doubly careful as to the facts which he submits.

In Table II., causes, area burned, damage, and cost of extinction are summarized. All causes given in Table I. are included and classified in accordance with the following standard classification suggested by the U. S. Forest Service.

LIGHTNING.—Fires the origin of which is directly traceable to lightning.

RAILROADS.—Fires incidental to the construction, operation or maintenance of common carrier railroads. (This includes fires from sparks or cinders from all locomotive or construction engines, from lighted cigars, etc. thrown from car windows, from the clearing of rights of way, or from the individual carelessness of any employee or passenger.)

LUMBERING.—Fires incidental to all lumbering operations. (This includes fires caused by sawmill or dinkey engines and logging railroad locomotives, except on such logging railroads as are common carriers; and by the carelessness of all lumbering employees.)

BRUSH BURNING.—Fires caused by clearing lands for any purpose (other than for rights of way for common carrier railroads, and brush burning in lumbering operations), or by rubbish, garbage, range, stubble or meadow burning, and by burning out animals, insects or reptiles.

CAMPERS.—Fires resulting in any manner from carelessness of campers, stockmen, prospectors, picnickers, surveyors, berry pickers, hunters, fishermen, automobilists, tramps, and other travelers through the forest.

INCENDIARY.—All fires maliciously set regardless of whether or not they can be classified under one of the above heads.

MISCELLANEOUS.—All fires the origin of which is known, but which can not be properly classified under any of the above heads.

UNKNOWN.—All fires the origin of which can not be determined with such degree of certainty as would justify their inclusion under any other head.

It will be observed that from eleven counties, no forest fires were reported. The total number of fires reported in 1915 is 1,101, whereas in 1913, there were reported 927, and in 1914, 1,159. The county reporting the greatest number of fires is Centre with 85. This probably covers a very high percentage of actual fires occurring, because with the whole county systematically protected, very few fires are likely to be overlooked. However, in Table III. it is seen that over half of the fires averaged less than 40 acres, about one-third of the number averaged 400 acres, and eight burned over 1,000 acres each, averaging 1,900 acres.

The next county in number of fires reported is Franklin with 65. This county is also well protected and probably few fires are unreported. There were no fires covering 1,000 acres. Thirteen fires burning more than 100 acres averaged less than 400 acres. Fourteen fires were less than one acre, and the remaining 38 averaged less than 30 acres. Observation towers, telephone lines, and organization may account for the difference. The cost of extinction in Centre county was over \$1,000 more than the cost of extinction in Franklin, and \$45,000 more damage was suffered in Centre. Certainly \$1,000 could not be spent to better advantage than in perfecting the already organized system of protection from forest fire in Centre county. The same deductions may be obtained by comparing other counties with these.

The railroads are frequently accused of causing anywhere from 50% to 90% of the forest fires in Pennsylvania. In 1913, the fires reported by our wardens as having been caused by railroads were 217; in 1914, 222; and in 1915, 275. There can be no question that this number is entirely too high, but it must be remembered that the larger railroads are endeavoring to reduce this number under adverse conditions in many cases. On the other hand, if we add the number of fires caused by brush burning, camping, lumbering, and miscellaneous, we have 305, practically all of which are absolutely the result of carelessness or indifference. Add to this most of the fires reported as of unknown origin and we obtain a much larger percentage of fires due to causes which can be so nearly eliminated that those which could not be avoided would be very few and very small in extent. Ignorance, carelessness, and indifference of our people are the important causes of forest fires which must be attacked first and which will be the most difficult to overcome.

Damages which may be charged against various causes are as follows:

Railroads,	\$135,588
Brush burning,	35,664
Incendiary,	98,419
Campers,	107,856
Lumbering,	8,100
Lightning,	2,230
Miscellaneous,	53,133
Unknown,	667,454

The total acreage reported as burned over is less than that reported in either 1913 or 1914, although the damage is higher than that of the other two years.

In 1913, \$27,945.18 was paid out by the State for extinction and a very small amount of patrol service; in 1914, \$32,523.19 was paid, and in 1915, \$28,444 was spent. From these figures it is not difficult to forecast how far an appropriation of \$45,000 for two years will go. Again, with these expenditures by the State and probably an equal

expenditure by private owners, the annual direct loss has been close to, if not over, \$1,000,000. With an expenditure of several times the amount of our appropriation for the perfecting of a protective system and the development of systematic co-operation among those interested, this tremendous loss could be reduced to a few thousand dollars and the forests of Pennsylvania would be redeemed.

Table III. shows that we had forest fires every month of the year except in January, August, and September. March, April, and May, October and November still remain the months in which we may expect the most fires. The first half of the year was very favorable for fires, while the second half seemed to be so well interspersed with rain that few fires were expected. Nevertheless, 162 were reported. The two months which always show up highest are April and November. In April many fishermen are along the streams and in November many hunters are in the woods. There does seem to be some relation between these facts and the number of fires reported for those months. At the same time, these two months present the best natural conditions for fires to start, namely, a dry forest floor and high winds. Any protection scheme must reach its highest effectiveness during these two months.

Table IV. classifies the fires according to area burned over. It will be noted that over half the fires were less than 100 acres in extent. About one-third burned between 100 and 1,000 acres with an average of about 350 acres; 78 were reported as having burned over 1,000 acres with a total acreage of almost 60% of the total acreage burned over by all the fires. Surely we want no more fires of this extent and it must be our aim to prevent fires reaching such a size.

Many other interesting deductions could be made from these tables but enough has been set forth to show the possibilities.

Most fires are preventable.

All must be detected quickly.

Notice of fire must be communicated quickly to some one whose business it is to extinguish it.

Men and necessary equipment must be available and preliminary organization for fire fighting must be made.

This force and equipment must begin action quickly after a fire starts.

The fire must be stopped first where it is burning hardest.

Valuable timber or other property must be saved before that of little value is looked after.

Respectfully submitted,

GEORGE H. WIRT,
Chief Forest Fire Warden.

TABLE I. DETAILED STATEMENT OF FOREST FIRES IN 1915.
ADAMS COUNTY.

Date.	Township.	Area Burned.		Damage to cut material. buildings, fences, etc.	Total damage.	Cause.		Cost of Extinction.		Fire Warden.
		State forest.	Private land.			Known.	Supposed.	From fire fund.	To individuals.	
April 10	Menallen.	500		?	\$800	Incendiary.	Incendiary.	\$49 82	\$30 96	R. G. Conklin.
April 10	Menallen.	1,000			5,000	Incendiary.		11 85	6 50	J. R. Williams.
April 17	Menallen.	5			25			1 75		J. R. Williams.
April 22	Hamiltonban.	40			160	Incendiary.		13 10	13 55	L. E. Staley.
		1,540.5			\$5,985			\$76 22	\$51 01	

ARMSTRONG COUNTY.

Mar. 3	Madison.		12		\$50	Tramps.		\$4 20	\$1 35	W. E. Paine.
Mar. 18	Madison.		45		300			5 25		W. E. Paine.
April 10	Madison.		20		120			7 70		W. E. Paine.
April 18	Mahoning.		10		10			8 60		S. A. Kunselman.
April 18	Mahoning.		70		1,800			12 85		S. A. Kunselman.
April 19	Madison.		90		10	P. R. R.		17 40	6 15	W. E. Paine.
April 26	Mahoning.		20		40			9 85		S. A. Kunselman.
April 30	Mahoning.		80		20			15 10		S. A. Kunselman.
May 11	Mahoning.		20		20			6 35		S. A. Kunselman.
			377		\$2,350			\$82 50	\$7 50	

BEDFORD COUNTY.

April 4-7	Broad Top.		100		\$100	Incendiary.		\$48 00		J. L. Tenley.
April 6	West Providence.		75		200	Clearing.		14 60		J. W. Tenley.
April 6	Broad Top.		10		75	H. & B. T. R. R.		23 48		J. H. Tenley.
April 6-7	Londonderry.		130		100	Camp fire.		29 85		H. Kiehl.
April 7	Monroe.		20		100	Clearing.		4 95		E. L. Tenley.
April 7-10	Broad Top.		1,065		1,077	H. & B. T. R. R.		103 40		C. Snyder.
April 8	Bloomfield.		50		150	Clearing.		9 25		R. W. Weicht.
April 8-12	West Providence.		100		15	B. & O. R. R.		15 32		R. H. Carpenter.
April 15	Londonderry.		75		50			5 55		J. L. Tenley.
April 15-21	Broad Top.		180		112	Incendiary.		38 35		J. L. Tenley.
April 16-18	Broad Top.		200		1,000	Clearing.		29 20		J. R. Barkman.
April 19	Monroe.		120		85	Boys.		41 30		J. R. Weicht.
April 19	West Providence.		25		200	P. R. R.		6 35		H. H. Carpenter.
April 19-20	Londonderry.		200		50	Clearing.		35 05		H. H. Carpenter.
April 19-20	Londonderry.		100		1,500			14 65		E. R. Smith.
April 19-20	Liberty.		1,000		800	Fishermen.		57 00		Wm. L. Byers.
April 20	Bedford.		800		100	Sawmill.		16 28		D. W. Stambaugh.
April 20	East St. Clair.		15		2			4 45		B. R. Brumbaugh.
April 20-22	Woodbury.		100		200	Fishermen.		55 82		J. L. Tenley.
April 15	Hopewell.		395		2,797	Smokers.		150 83		S. Ritchey.
April 18	East Providence.		65		130	Burning brush.		12 65		E. R. Smith.
April 21	Liberty.		700		800	Burning brush.		92 15		J. L. Tenley.
April 22	Broad Top.		10		10	H. & B. T. R. R.		14 35		J. Barkman.
April 22	Monroe.		255		112			17 90		H. H. Carpenter.
April 25	Londonderry and Cumber- land Valley.		200		400	P. R. R.		32 45		B. R. Brumbaugh.
April 28	Woodbury.		3		10	Lightning.		5 80		F. M. Agnew.
April 29	Bedford.		30		200			7 05		J. L. Tenley.
Oct. 30	Broad Top.		13		25	Hunters.		10 40		Wm. L. Byers.
Nov. 2	Colerain.		50		215	Incendiary.		15 25		D. F. Workman.
Nov. 2	Liberty.		3		1	Sawmill.		6 90		J. Barkman.
Nov. 2	Monroe.		1		1	Smoker.		4 30		D. M. Miller.
Nov. 3	Snake Spring.		1		1			3 88		D. F. Workman.
Nov. 3	Liberty.		25		150	P. R. R.		20 65		H. H. Carpenter.
Nov. 2-3	Londonderry.		150		25			6 85		Wm. L. Byers.
Nov. 2-3	Sonhampton and Monroe.		50		15	Incendiary.		7 02		J. L. Tenley.
Nov. 6-7	Broad Top.		10		20	Burning brush.		5 05		J. A. Horning.
Nov. 7-8	Bedford.		10		10					
Nov. 11			6,324.6		\$2,333			\$969 49		

TABLE I. DETAILED STATEMENT OF FOREST FIRES IN 1915—Continued.

BERKS COUNTY.

Date.	Township.	Area Burned.		Damage to cut material, buildings, fences, etc.	Total damage.	Cause.		Cost of Extinction.		Fire Warden.
		State forest.	Private land.			Known.	Supposed.	From fire fund.	To individuals.	
Mar. 3	Robeson.	.....	20	\$40	\$110	P. & R. R. R.	.....	\$5 28	.....	L. S. Evans.
3	Robeson.	.....	50	.....	.....	P. & R. R. R.	.....	9 88	.....	L. L. Parkes.
3	Richmond.	.....	12	5	41	P. & R. R. R.	.....	3 60	.....	L. L. Parkes.
4	Richmond and Ruscombmanor.	.....	4	.....	20	P. & R. R. R.	.....	2 01	.....	S. S. L. Parkes.
4	Union.	.....	100	.....	100	.....	.....	4 45	.....	S. L. Parkes.
29	Muhlenberg.	.....	100	.....	300	.....	.....	5 80	.....	N. H. Fisher.
29	Earl.	.....	75	.....	375	.....	.....	8 88	.....	S. L. D. Parkes.
30	Robeson.	.....	3	.....	25	P. & R. R. R.	.....	87	.....	L. L. D. Parkes.
April 1	Robeson.	.....	6	.....	.....	.....	.....	1 43	.....	S. L. D. Parkes.
18	Maxatawny.	.....	15	.....	.....	Railroad.	.....	5 14	.....	S. L. D. Parkes.
18	Ruscombmanor.	.....	40	140	360	Burning brush.	.....	17 85	.....	S. L. R. Meck.
19	Bethel.	.....	2,280	200	23,000	Railroad.	Incendiary.	285 68	.....	S. L. R. Meck.
20	Lower Alsace.	.....	15	.....	45	Railroad.	.....	5 80	.....	F. L. Yoder.
22	Cumru.	.....	10	.....	200	Railroad.	.....	2 69	.....	F. L. N. Christman.
29	Upper Tulpehocken.	.....	10	49	124	Clearing.	.....	6 73	.....	L. L. N. Christman.
May 1	Upper Tulpehocken and Bethel.	.....	500	.....	100	.....	.....	9 00	.....	M. W. Snyder.
Oct. 20	Greenwich.	.....	4	.....	50	.....	.....	2 80	.....	J. E. McNeal.
Dec. 10	Reading City.	.....	1	.....	.....	.....	.....	.....	.....	.....
			3,255	\$434	\$24,850			\$497 81		

BLAIR COUNTY.

April 6	Huston.	.....	88	\$30	\$400	Clearing.	.....	\$6 80	.....	D. M. Fouse.
14	Frankstown.	.....	20	66	236	Carelessness.	.....	8 40	\$136 25	Dr. J. A. Gold.
14-15	Antis.	.....	105	2	72	Sawmill.	.....	19 70	.....	J. A. Irvin.
14-16	Woodbury.	.....	150	.....	450	.....	Campers.	.....	.....	Wm. Hyle.

14-18	Logan.	.....	200	.....	500	.....	Railroad.	29 90	.....	G. W. Grove.
16	Logan.	.....	200	300	600	.....	.....	16 05	.....	G. W. Grove.
18	Logan.	.....	125	80	680	.....	.....	21 90	.....	Wm. Hyle.
17-18	Catharine.	.....	100	100	600	.....	.....	26 25	.....	G. W. Grove.
18	Logan.	.....	150	.....	600	Sawmill.	.....	15 30	.....	M. H. Kensingler.
19	North Woodbury.	.....	600	.....	900	Burning brush.	.....	42 35	.....	J. A. Irvin.
19-20	Antis.	.....	30	.....	150	Lightning.	.....	13 50	.....	Dr. J. A. Gold.
May 6	Blair.	.....	150	.....	500	Burning brush.	.....	10 50	.....	D. M. Fouse.
15	Huston.	.....	50	.....	500	.....	.....	41 50	.....	Wm. Hyle.
21	Catharine.	.....	1,350	.....	300	.....	A. N. R. R.	60 64	.....	A. L. Fleck.
Oct. 31-No. 1	Tyrone.	.....	35	.....	200	Logging R. R.	.....	5 03	.....	J. A. Irvin.
Nov. 2-4	Antis and Logan.	.....	.....	.....	.....	.....	.....	32 00	.....	Dr. J. A. Gold.
Nov. 3	Frankstown.	.....	.....	.....	.....	.....	.....	.....	.....	G. W. Grove.
5	Logan.	.....	3,353	\$578	\$6,688	.....	.....	\$317 82	\$158 25	.....

BRADFORD COUNTY.

April 9-10	Monroe.	.....	185	.....	\$150	Railroad.	.....	\$2 85	.....	T. Smith.
9-10-13	Monroe.	.....	450	.....	800	Incendiary.	.....	24 60	.....	L. T. Smith.
22	Monroe.	.....	275	.....	500	Clearing.	.....	11 90	.....	L. T. Smith.
22	Franklin.	.....	15	.....	300	.....	.....	6 55	.....	C. R. Montgomery.
25	Albany.	.....	8	.....	25	Incendiary.	.....	5 80	.....	L. T. Smith.
26-27	Monroe.	.....	95	.....	150	Lightning.	.....	9 20	.....	L. T. Smith.
June 1	Franklin.	.....	958	.....	2	Burning brush.	.....	2 20	.....	C. R. Montgomery.
					\$2,227			\$64 10		

BUCKS COUNTY.

Mar. 3	Buckingham.	.....	30	\$300	\$300	Railroad.	.....	\$2 70	.....	J. Ewers.
29	Buckingham.	.....	35	.....	350	Children.	.....	3 05	.....	J. Ewers.
			65	\$300	\$650			\$5 75		

TABLE I. DETAILED STATEMENT OF FOREST FIRES IN 1915—Continued.

CAMBRIA COUNTY.

Date.	Township.	Area Burned.		Damage to cut material, buildings, fences, etc.	Total damage.	Cause.		Cost of Extinction.		Fire Warden.
		State Forest.	Private land.			Known.	Supposed.	From fire fund.	To individuals.	
April 8	Chest.	.....	.....	.....	.....	.....	Railroad.	\$2 95	.....	F. Gill.
13-15	Chest.	.....	.....	.....	.....	.....	Railroad.	22 40	.....	C. F. D. McCartney.
15	Cresson.	.....	.....	.....	.....	.....	Incendiary.	8 75	.....	S. D. Cassidy.
18-19	West Taylor.	.....	.....	.....	.....	.....	.....	21 55	.....	M. F. Cassidy.
26	Gallitzin.	.....	.....	.....	.....	.....	.....	4 60	.....	Edw. Clark.
26-27	Adams.	.....	.....	.....	.....	.....	Incendiary.	21 00	.....	H. J. Conway.
26-27	Cresson.	.....	.....	.....	.....	.....	.....	26 40	.....	S. E. Jamison.
26-27	Adams.	.....	.....	.....	.....	.....	.....	34 55	.....	M. Cassidy.
28	West Taylor.	.....	.....	.....	.....	.....	.....	25 10	.....	S. E. Jamison.
28-29	Chest.	.....	.....	.....	.....	.....	.....	14 85	.....	Edw. Clark.
May 7	East Taylor.	.....	.....	.....	.....	.....	Railroad.	68 07	.....	C. F. Gill.
10-11	Washington.	.....	.....	.....	.....	.....	.....	37 05	.....	G. C. Varner.
11	Jackson.	.....	.....	.....	.....	.....	.....	30 65	.....	M. Cassidy.
June 6-7	Reade.	.....	.....	.....	.....	.....	Incendiary.	13 25	.....	Edw. Clark.
Nov. 1-2	Washington.	.....	.....	.....	.....	.....	.....	2 40	.....	S. D. McCartney.
								9 25	.....	M. Cassidy.
								\$351 82	\$1 80	

CAMERON COUNTY.

Mar. 21	Lumber.	.....	.....	.....	.....	.....	.....	.....	.....	C. A. Swartz.
April 14	Shippin.	.....	.....	.....	.....	.....	.....	.....	.....	A. B. Evans.
14-15	Gibson.	.....	.....	.....	.....	.....	.....	.....	.....	H. E. Elliott.
16	Lumber.	.....	.....	.....	.....	.....	.....	.....	.....	C. A. Swartz.
16-17	Shippin.	.....	.....	.....	.....	.....	.....	.....	.....	C. A. Swartz.
17-21	Portage and Shippin.	.....	.....	.....	.....	.....	.....	.....	.....	W. B. Evans.
								\$1 15	.....	
								15 20	.....	
								1 90	.....	
								6 10	.....	
								10 45	.....	
								17 65	.....	

13-19	Lumber.	.....	.....	.....	.....	.....	.....	.....	.....	A. Swartz.
19-20	Shippin.	.....	.....	.....	.....	.....	.....	.....	.....	A. Swartz.
20	Lumber.	.....	.....	.....	.....	.....	.....	.....	.....	H. Horning.
20-21	Lumber.	.....	.....	.....	.....	.....	.....	.....	.....	C. A. Swartz.
21-22	Shippin.	.....	.....	.....	.....	.....	.....	.....	.....	C. A. Swartz.
22	Lumber.	.....	.....	.....	.....	.....	.....	.....	.....	C. A. Swartz.
25-26	Lumber.	.....	.....	.....	.....	.....	.....	.....	.....	W. H. Horning.
26	Lumber.	.....	.....	.....	.....	.....	.....	.....	.....	C. A. Swartz.
26-27	Shippin.	.....	.....	.....	.....	.....	.....	.....	.....	W. H. Horning.
27	Grove.	.....	.....	.....	.....	.....	.....	.....	.....	W. H. Horning.
28	Grove.	.....	.....	.....	.....	.....	.....	.....	.....	W. H. Horning.
30	Grove.	.....	.....	.....	.....	.....	.....	.....	.....	W. H. Horning.
May 10	Grove.	.....	.....	.....	.....	.....	.....	.....	.....	W. H. Horning.
Oct. 13	Lumber.	.....	.....	.....	.....	.....	.....	.....	.....	W. H. Horning.
								35 65	.....	
								41 20	.....	
								33 15	.....	
								23 65	.....	
								43 84	.....	
								3 85	.....	
								4 45	.....	
								24 10	.....	
								23 93	.....	
								2 50	.....	
								14 45	.....	
								3 35	.....	
								28 50	.....	
								3 05	.....	
								1 75	.....	
								\$327 37	.....	

CARBON COUNTY.

Feb. 21	Franklin.	.....	.....	.....	.....	.....	.....	.....	.....	D. Boyer.
26	East Penn.	.....	.....	.....	.....	.....	.....	.....	.....	D. Kemmerer.
Mar. 27	Mauch Chunk.	.....	.....	.....	.....	.....	.....	.....	.....	E. J. K. Esser.
27	Mauch Chunk.	.....	.....	.....	.....	.....	.....	.....	.....	J. J. K. Esser.
29	East Penn.	.....	.....	.....	.....	.....	.....	.....	.....	J. A. Kemmerer.
29	Lower Towamensing.	.....	.....	.....	.....	.....	.....	.....	.....	J. A. Kemmerer.
30	East Penn.	.....	.....	.....	.....	.....	.....	.....	.....	J. A. Kemmerer.
31	East Penn.	.....	.....	.....	.....	.....	.....	.....	.....	J. A. Kemmerer.
April 1	East Penn.	.....	.....	.....	.....	.....	.....	.....	.....	J. A. Kemmerer.
8	East Penn.	.....	.....	.....	.....	.....	.....	.....	.....	J. A. Kemmerer.
9	Mauch Chunk.	.....	.....	.....	.....	.....	.....	.....	.....	J. A. Kemmerer.
9-10	Mauch Chunk.	.....	.....	.....	.....	.....	.....	.....	.....	J. A. Kemmerer.
10	Lehigh.	.....	.....	.....	.....	.....	.....	.....	.....	J. A. Kemmerer.
11	East Penn.	.....	.....	.....	.....	.....	.....	.....	.....	J. A. Kemmerer.
14	Towamensing.	.....	.....	.....	.....	.....	.....	.....	.....	J. A. Kemmerer.
14-17	Franklin.	.....	.....	.....	.....	.....	.....	.....	.....	J. A. Kemmerer.
18	Lower Towamensing.	.....	.....	.....	.....	.....	.....	.....	.....	J. A. Kemmerer.
18	East Penn.	.....	.....	.....	.....	.....	.....	.....	.....	J. A. Kemmerer.
18	Packer.	.....	.....	.....	.....	.....	.....	.....	.....	J. A. Kemmerer.
18	Mauch Chunk.	.....	.....	.....	.....	.....	.....	.....	.....	J. A. Kemmerer.
19	East Penn.	.....	.....	.....	.....	.....	.....	.....	.....	J. A. Kemmerer.
20	East Penn.	.....	.....	.....	.....	.....	.....	.....	.....	J. A. Kemmerer.
21	Towamensing.	.....	.....	.....	.....	.....	.....	.....	.....	J. A. Kemmerer.
21	Lower Towamensing.	.....	.....	.....	.....	.....	.....	.....	.....	J. A. Kemmerer.
22	Mauch Chunk.	.....	.....	.....	.....	.....	.....	.....	.....	J. A. Kemmerer.
								\$4 95	.....	
								2 25	.....	
								26 65	.....	
								17 85	.....	
								8 85	.....	
								4 20	.....	
								4 65	.....	
								12 15	.....	
								4 90	.....	
								.30	.....	
								18 75	.....	
								26 40	.....	
								7 00	.....	
								23 65	.....	
								11 61	.....	
								6 33	.....	
								14 35	.....	
								7 00	.....	
								3 45	.....	
								41 10	.....	
								32 50	.....	
								16 39	.....	
								15 50	.....	
								1 42	.....	

CARBON COUNTY—Continued.

CENTRE COUNTY.

[illegible]

TABLE I. DETAILED STATEMENT OF FOREST FIRES IN 1915—Continued.

CENTRE COUNTY—Continued.

Date.	Township.	Area Burned.		Damage to cut material, buildings, fences, etc.	Total damage.	Cause.		Cost of Extinction.		Fire Warden.	
		State forest.	Private land.			Known.	Supposed.	From fire fund.	To individuals.		
25	Ferguson, .....	.....	300	.....	25	.....	.....	22 15	.....	W. D. Ludwig.	
25-26	Half Moon and Ferguson, .....	.....	400	.....	300	.....	.....	32 65	.....	J. P. Eves.	
25-27	Harris, .....	.....	150	.....	450	.....	.....	6 95	.....	J. C. Woodring.	
25-28	Rush,	300	200	.....	900	.....	.....	5 35	.....	H. I. Reed.	
26	Penn, .....	.....	4	.....	25	.....	.....	113 94	.....	W. D. Ludwig.	
26-27	Penn and Gregg,	1,800	40	.....	7,000	.....	.....	34 90	6 00	L. E. Hess.	
26-27	Patton, .....	.....	1,400	10	3,010	.....	.....	230 53	.....	C. R. Meek.	
26-27	Ferguson and Patton, .....	.....	1,500	60	70	.....	Incendiary,	24 90	.....	{ W. E. Montgomery. C. R. Meek. G. R. Clark.	
26-27	Taylor, .....	.....	35	.....	.....	.....	Incendiary,	9 25	2 10	J. Kelley.	
28	Rush, .....	.....	2	.....	.....	P. R. R., .....	.....	2 25	1 75	G. Pfoutz.	
28	Spring, .....	.....	100	.....	300	.....	Lightning,	70 40	.....	L. G. Barnes.	
May 6	Gregg, .....	.....	20	.....	20	.....	Incendiary,	12 40	.....	C. R. Meek.	
May 11	Rush, .....	.....	75	8	175	.....	Smokers,	7 25	.....	G. Pfoutz.	
11	Haines, .....	.....	150	.....	60	.....	.....	16 30	.....	C. D. Motz.	
11	Beech Creek and Curtin, .....	.....	130	.....	25	Dinkey engine, .....	.....	5 88	.....	J. Winklebeck.	
13	Worth, .....	.....	80	25	125	Burning brush, .....	.....	16 20	3 00	H. C. Woodring.	
15	Half Moon, .....	.....	425	.....	425	.....	.....	24 50	10 80	I. P. Eves.	
15-16	Snow Shoe, .....	.....	1	.....	1	.....	.....	.....	.....	G. W. Sheeler.	
28	Haines, .....	.....	5	.....	.....	Incendiary, .....	.....	6 12	.....	C. D. Motz.	
Oct. 22	Snow Shoe, .....	.....	300	.....	.....	P. R. R.,	Hunters,	7 45	.....	G. W. Sheeler.	
Oct. 24	Curtin, .....	.....	125	.....	.....	Hunters, .....	.....	29 48	3 00	J. A. Mann.	
Nov. 1	Marion, .....	.....	820	10	430	.....	Hunters,	9 05	1 40	J. W. Holmes.	
2-3	Boggs, .....	.....	5	.....	.....	.....	Hunters,	2 50	.....	G. W. Sheeler.	
14	Taylor, .....	.....	2	.....	4	.....	.....	75 25	.....	M. Hoover.	
Dec. 11	Penn, .....	.....	.....	.....	.....	.....	.....	.....	.....	C. R. Meek.	
	Patrol service during spring of 1915.										G. W. Sheeler.

TABLE I. DETAILED STATEMENT OF FOREST FIRES IN 1915—Continued.
CLEARFIELD COUNTY—Continued.

Date.	Township.	Area Burned.		Damage to cut material, buildings, fences, etc.	Total damage.	Cause.		Cost of Extinction.		Fire Warden.
		State forest.	Private land.			Known.	Supposed.	From fire fund.	To individuals.	
15-16	Woodward.									A. Moyer.
16	Sandy.		300		450		Fishermen.	33 20		J. W. Cross.
16-20	Chester Hill Borough.		30		150		Fishermen.	52 55		H. C. Scofield.
17	Huston.		1,000		2,000		Children.	1 46		R. L. Kirk.
17-18	Decatur.		3		50			33 66		G. Sankey.
18	Brady.		150		50			37 15		W. P. Wingert.
18-19	Huston.		50		1,120		Railroad.	36 65		C. L. Kirk.
18	Chest.		100		200			37 85		R. V. McGarvey.
18-19	Lawrence and Goshen.		1,000	\$100	3,100			22 75		W. E. Goss.
18-19	Knox.		245	2,272	3,497		Fishermen.	3 10		D. C. Barnett.
18-20	Penn.		1,500				Lumbering.	5 75		W. K. Danvir.
19	Sandy.		300				Railroad.	108 25		H. C. Scofield.
19-20	Huston.		400					77 35		D. C. Barnett.
19-21	Knox.		300				Railroad.	20 65		A. Moyer.
20-21	Huston.		60	70	900		Incendiary.	9 40	3 20	N. R. McNaughton.
20-22	Woodward.		50	40	350			16 75		D. C. Barnett.
21-22	Knox.		175				Railroad.	76 45		C. L. Kirk.
21-22	Lawrence & Goshen.		1,300		250		P. J. & E. R. R.	12 75		R. V. McGarvey.
24-25	Huston.		100		90			8 75	4 00	G. Sankey.
25-27	Chester.		40		10		Lightning.	2 95		N. R. McNaughton.
27	Karthauss.		12		24		Lightning.	3 75		N. R. C. Barnett.
27-28	Knox.		8		16		Clearing.	41 75		D. C. Barnett.
28	Knox.		1,000		2,000		Fishermen.	52 55		A. Moyer.
28-29	Lawrence.		1,400	50	2,900		Railroad.	18 45		G. Beer.
28-May 1	Woodward.		300		40		Clearing.	9 50		M. W. W. Lines.
29	Sandy.		10							
29	Penn.									

CLINTON COUNTY.

Date.	Township.	Area Burned.		Damage to cut material, buildings, fences, etc.	Total damage.	Cause.		Cost of Extinction.		Fire Warden.
		State forest.	Private land.			Known.	Supposed.	From fire fund.	To individuals.	
Mar. 4	Chapman.									H. F. Critchley.
16	Colebrook.		50		\$25			\$2 75	\$2 83	H. F. Young.
22-23	Raid Eagle.		75		60			7 06	22 53	J. Kirby.
27	Chapman.		40		15		Burning brush.	5 65		H. F. Critchley.
28	Noyes.		15		150			11 35		F. H. Duffinger.
April 1-2	Gugan.		25				Railroad.	2 50	21 60	J. B. Ryon.
3-4	Colebrook.		2		300			4 45	15 90	J. B. Ryon.
4	Lamar.		46		10		P. R. R.	13 50		J. F. Young.
4	Chapman.		1		5		Incendiary.	1 75	1 20	J. R. Hogentogler.
7	Colebrook.		1		1,350			2 75	40	J. F. Critchley.
8	Chapman.		135					3 56		J. Kirby.
8	Raid Eagle.		40					60		J. B. Ryon.
8	Colebrook.		50					2 35		J. B. Ryon.
8	Gugan.		14					5 65		J. B. Ryon.
8	Gugan.		35					34 70		W. L. Schadt.
9-10	Gugan.		140		500		Burning brush.	2 75	9 40	M. E. Muller.
9-11	Raid Eagle.		10					20 70		J. F. Young.
10	Ledy.		20					9 62		J. F. Young.
12	Chapman.		150		750			24 40		W. L. Schadt.
13	Colebrook.		55					22 95		H. S. Metzger.
14-15	Castanea.		800		1,500		Incendiary.	19 50		C. H. Granly.
15	Greene.		300	250	250			84 27		W. L. Schadt.
15-18	Castanea.		1,000		8,000		Incendiary.	94 27		J. R. Hogentogler.
15-21	Wayne.		2,000		7,000		Fishermen.	10 50		J. R. Hogentogler.
16-21	Wayne.		1,500							

TABLE I. DETAILED STATEMENT OF FOREST FIRES IN 1915—Continued

CLINTON COUNTY—Continued.

Date.	Township.	Area Burned.		Damage to cut material, buildings, fences, etc.	Total damage.	Cause.		Cost of Extinction.		Fire Warden.
		State forest.	Private land.			Known.	Supposed.	From fire fund.	To individuals.	
17-18	Greene.	.....	200	.....	350	.....	Incendary.	60 65	7 20	H. S. Metzger.
17-18	Castanea.	.....	.....	150	150	.....	.....	11 90	.....	W. L. Schadt.
17-18	Lamar and Wayne.	500	1,500	.....	5,000	.....	.....	132 25	27 00	J. R. Hogentogler.
17-18	Pine Creek and Gallagher.	.....	1,500	.....	1,500	Fishermen.	.....	182 81	.....	W. M. McKinney.
17-21	Bald Eagle.	80	.....	.....	.....	P. R. R.	.....	17 56	.....	J. Kirby.
18-21	Bald Eagle, Porter and Lamar.	.....	4,500	27	.....	.....	.....	133 45	.....	J. B. Strunk.
18-19	Castanea.	.....	40	.....	.....	Burning brush.	.....	20 70	.....	W. L. Schadt.
19	Beech Creek.	.....	2,500	.....	.....	P. R. R.	.....	75 45	.....	Wm. Coder.
19-21	Bald Eagle.	200	.....	.....	.....	.....	Carelessness.	25 27	.....	J. Kirby.
19-21	Wayne.	100	500	.....	1,500	.....	.....	75 35	.....	J. R. Hogentogler.
20	Greene.	.....	2,500	.....	.....	Fishermen.	Incendary.	8 95	1 80	M. E. Metzger.
20-22	Ledy.	150	2,000	.....	4,000	.....	.....	3 45	3 60	M. E. Metzger.
20-25	Ledy and Noyes.	400	2,000	.....	5,000	Railroad.	.....	19 75	.....	M. E. Metzger.
21	Crawford.	.....	2,000	.....	.....	Fishermen.	.....	66 36	.....	C. C. Fetterhoff.
21-28	Noyes, Chapman and Grugan.	4,400	30,000	.....	35,000	Fishermen.	.....	239 68	85 20	H. F. Critchley.
21	Colebrook.	75	.....	1,360	1,735	Railroad.	.....	4 00	.....	F. H. Dutlinger.
21	Crawford.	200	.....	.....	600	.....	Incendary.	26 80	.....	J. F. Young.
21-23	East Keating.	250	1,000	.....	.....	.....	.....	33 80	8 50	H. S. Metzger.
25	Grugan.	150	40	.....	500	Fishermen.	.....	16 65	12 90	W. H. Horning.
25-27	East Keating.	200	.....	.....	.....	Incendary.	.....	51 85	9 20	M. E. Metzger.
28-30	Beech Creek.	600	.....	.....	2,000	Incendary.	.....	3 00	27 30	F. H. Dutlinger.
29-30	Chapman.	4,000	.....	.....	10,000	Incendary.	.....	497 30	24 00	H. F. Critchley.
May 14	Ledy.	.....	50	.....	35	Incendary.	.....	4 45	2 30	M. E. Metzger.
19	Noyes.	.....	25	.....	50	.....	.....	2 60	.....	M. E. Metzger.
19	Ledy.	.....	2	.....	50	.....	Children.	.....	.....	H. F. Critchley.
Oct. 23	Chapman.	.....	.....	.....	.....	.....	.....	.....	.....	.....

Nov. 23-24	Noyes and Chapman.	15	300	.....	160	.....	Hunters.	10 20	.....	L. O. Weaver.
2	Noyes.	.....	70	.....	.....	.....	Incendary.	26 20	.....	H. E. Konler.
2-3	Chapman.	.....	75	.....	25	.....	Hunters.	11 20	8 00	H. F. Critchley.
2-3	Bald Eagle.	.....	25	.....	500	.....	.....	5 80	2 40	J. L. Harvey.
4-5	Noyes.	300	.....	.....	.....	.....	.....	15 70	7 80	F. H. Dutlinger.
		13,275	56,739	\$1,760	\$93,047			\$2,247 62	\$509 52	

COLUMBIA COUNTY.

Mar. 16-17	Beaver.	.....	200	.....	.....	Incendary.	.....	\$18 50	.....	W. W. Boone.
28	Beaver.	.....	100	.....	.....	Burning building.	.....	12 15	.....	W. W. Boone.
April 2	Briar Creek.	.....	3	.....	.....	Burning brush.	.....	10 30	.....	G. R. Robbins.
8	Pine.	.....	30	.....	.....	Burning brush.	.....	7 00	.....	W. R. Bittler.
9-10	Roaring Creek.	.....	500	.....	\$5,400	.....	.....	32 97	.....	F. H. Craig.
18-20	Roaring Creek.	.....	500	.....	3,500	.....	.....	97 13	.....	F. H. Craig.
19	Mitlin.	.....	100	.....	85	.....	.....	8 25	.....	R. M. Lutz.
20-22	North Union and Beaver.	.....	2,000	.....	4,000	Steam shovel.	.....	67 25	.....	W. W. Boone.
			3,433		\$12,885			\$248 35		

CUMBERLAND COUNTY.

Mar. 20	Hamden.	.....	20	.....	.....	Incendary.	.....	\$5 90	.....	J. W. Waggoner.
April 1-2	East Pennsboro.	.....	65	.....	.....	G. & H. R. R.	.....	66 20	.....	J. F. Shuman.
4	Dickinson.	.....	3.5	.....	.....	Burning brush.	.....	4 48	\$4 25	J. R. Williams.
6	Frankford.	.....	2	.....	.....	.....	.....	3 30	.....	A. G. Moutz.
6	South Middleton.	.....	4	.....	.....	Burning brush.	.....	6 69	.....	I. A. Coulson.
8	East Pennsboro.	.....	10	.....	67	.....	Incendary.	3 15	.....	B. F. Shuman.
8	Rye.	.....	20	.....	133	Burning brush.	.....	4 00	.....	B. F. Shuman.
10	Hamden.	.....	67	.....	50	.....	Incendary.	25 55	.....	J. W. Waggoner.
10	Southampton.	.....	300	.....	.....	.....	Carelessness.	45 10	15 55	R. G. Conklin.
18-19	Cooke and Dickinson.	.....	15	.....	1,000	Fishermen.	.....	66 60	.....	J. R. Williams.
20	Penn.	.....	2,000	.....	10,000	.....	.....	134 16	65 18	J. R. Williams.
20-22	Penn. Cooke and Dickinson.	.....	1,000	.....	50,000	.....	.....	96 65	.....	J. R. Williams.
20-22	Menallen.	.....	4,000	.....	4,000	.....	.....	96 75	.....	J. H. Myers.
21	Penn.	.....	4,000	.....	20,000	Previous fire.	Incendary.	58 32	.....	E. P. Hassinger.
21-22	Hopewell.	.....	125	.....	30	.....	Incendary.	6 57	.....	E. P. Myers.
22	Hopewell.	.....	30	.....	20,000	Previous fire.	Incendary.	84 10	.....	J. H. Williams.
22-26	Lower Dickinson.	.....	175	.....	1,600	.....	.....	25 73	.....	J. R. Williams.

TABLE I. DETAILED STATEMENT OF FOREST FIRES IN 1915—Continued.

CUMBERLAND COUNTY—Continued.

Date.	Township.	Area Burned.		Damage to cut material, buildings, fences, etc.	Total damage.	Cause.		Cost of Extinction.		Fire Warden.
		State forest.	Private land.			Known.	Supposed.	From fire fund.	To individuals.	
25	Dickinson.	500	500	4,000	4,000	.....	.....	13 80	10 00	J. R. Williams.
26	Dickinson.	500	500	1,500	1,500	.....	.....	22 15	12 33	J. R. Williams.
Nov. 2	South Middleton.	500	500	5,000	5,000	.....	.....	28 60	8 69	J. E. P. Hassinger.
12	Upper Midlin.	80	80	.....	.....	.....	.....	4 25	.....	E. W. Waggoner.
27	Hampden.	30	30	40	40	.....	Hunters.	.....	.....	J. W. Waggoner.
		5,550	13,496.5	\$8,525	\$117,575	.....	.....	\$311 46	\$116 05	

DAUPHIN COUNTY

Mar. 2-3	Williams.	.....	.....	.....	.....	P. & R. R. R.	.....	23 45	.....	J. Williams.
2-3	Wiconisco.	.....	.....	.....	.....	P. & R. R. R.	.....	24 20	.....	C. W. Seifert.
3	Upper Paxton.	.....	.....	.....	.....	P. & R. R. R.	.....	3 05	.....	W. C. Mills.
4	Washington and Elizabethtown.	.....	.....	.....	.....	P. & R. R.	.....	5 25	.....	T. G. Lentz.
21	Upper Paxton.	.....	.....	.....	.....	P. & R. R.	.....	2 27	.....	W. C. Mills.
12	Upper Paxton.	.....	.....	.....	.....	Camper.	.....	8 70	.....	J. H. Mumma.
17	Upper Paxton.	.....	.....	.....	.....	Children.	.....	1 45	.....	W. C. Mills.
23	West Hanover.	.....	.....	.....	.....	P. R. R.	.....	3 30	.....	C. F. Herr.
28	Upper Paxton.	.....	.....	.....	.....	.....	.....	12 15	.....	H. E. Lubold.
29	Derry.	.....	.....	.....	.....	Railroad.	.....	6 15	.....	J. F. Hampton.
30	Washington.	.....	.....	.....	.....	P. & R. R. R.	.....	1 00	.....	J. F. Hampton.
April 1	East Hanover.	.....	.....	.....	.....	P. & R. R. R.	.....	26 85	.....	J. F. Hampton.
2	East Hanover.	.....	.....	.....	.....	P. & R. R. R.	.....	2 65	.....	W. C. Mills.
2	East Hanover.	.....	.....	.....	.....	P. & R. R. R.	.....	1 76	.....	J. H. Mumma.
4	Upper Paxton.	.....	.....	.....	.....	Burning brush.	.....	7 00	.....	M. Knorr.
15	West Hanover.	.....	.....	.....	.....	W. V. R. R.	.....	.....	.....	.....
5	Williams.	.....	.....	.....	.....	.....	.....	.....	.....	.....

5-6	Williams.	.....	.....	.....	.....	.....	.....	41 25	.....	J. Williams.
8	Washington.	.....	.....	.....	.....	.....	.....	20 55	.....	H. E. Lubold.
8	Rush.	.....	.....	.....	.....	.....	.....	11 85	.....	M. Knorr.
8	Upper Paxton.	.....	.....	.....	.....	.....	.....	17 66	.....	W. C. Mills.
8	Washington.	.....	.....	.....	.....	.....	.....	14 72	.....	T. G. Lentz.
9	Wiconisco.	.....	.....	.....	.....	.....	.....	13 50	.....	C. W. Seifert.
9-10	East Hanover.	.....	.....	.....	.....	.....	.....	15 90	.....	J. F. Hampton.
10	Washington.	.....	.....	.....	.....	.....	.....	11 25	.....	T. G. Lentz.
10	Upper Paxton.	.....	.....	.....	.....	.....	.....	1 00	.....	W. C. Mills.
13	Wiconisco.	.....	.....	.....	.....	.....	.....	9 00	.....	C. W. Seifert.
14	Upper Paxton.	.....	.....	.....	.....	.....	.....	8 75	.....	W. C. Mills.
14	Wiconisco.	.....	.....	.....	.....	.....	.....	11 15	.....	M. Knorr.
15	Hatfield.	.....	.....	.....	.....	.....	.....	13 72	.....	H. E. Hoffman.
17	Washington.	.....	.....	.....	.....	.....	.....	11 90	.....	H. E. Lubold.
17	West Hanover.	.....	.....	.....	.....	.....	.....	7 35	.....	H. E. Mumma.
17-22	Washington, Jackson and Jefferson.	.....	.....	.....	.....	.....	.....	23 18	.....	T. G. Lentz.
17-18	Middle Paxton.	.....	.....	.....	.....	.....	.....	21 35	.....	P. Farmer.
17-19	Williams.	.....	.....	.....	.....	.....	.....	31 90	.....	J. H. Romberger.
18	Washington.	.....	.....	.....	.....	.....	.....	115 10	.....	J. M. Rutter.
18-20	Rush and Jackson.	.....	.....	.....	.....	.....	.....	32 80	.....	J. M. Lebo.
19-21	Rush.	.....	.....	.....	.....	.....	.....	59 05	.....	J. Williams.
20	Williams.	.....	.....	.....	.....	.....	.....	2 06	.....	H. E. Lubold.
21	Upper Paxton.	.....	.....	.....	.....	.....	.....	53 50	.....	M. Knorr.
22	Upper Paxton.	.....	.....	.....	.....	.....	.....	40 10	.....	E. S. Carl.
22-24	Susquehanna.	.....	.....	.....	.....	.....	.....	18 50	.....	J. Williams.
23-25	Washington.	.....	.....	.....	.....	.....	.....	4 00	.....	W. C. Mills.
27	Washington.	.....	.....	.....	.....	.....	.....	6 80	.....	W. C. Mills.
30	Washington.	.....	.....	.....	.....	.....	.....	22 40	.....	E. O. Hassler.
May 2	Wiconisco.	.....	.....	.....	.....	.....	.....	11 25	.....	T. G. Lentz.
6	Jefferson.	.....	.....	.....	.....	.....	.....	5 45	.....	H. E. Lubold.
11	Williams.	.....	.....	.....	.....	.....	.....	16 45	.....	H. E. Lubold.
11	Jefferson.	.....	.....	.....	.....	.....	.....	2 85	.....	H. E. Lubold.
24-25	Williams and Jackson.	.....	.....	.....	.....	.....	.....	11 40	.....	J. M. Rutter.
Oct. 1-2	Williams.	.....	.....	.....	.....	.....	.....	12 65	.....	M. Knorr.
Nov. 1-3	Lykens.	.....	.....	.....	.....	.....	.....	7 25	.....	J. Williams.
2	Conewago.	.....	.....	.....	.....	.....	.....	30 85	.....	J. Williams.
2	Williams.	.....	.....	.....	.....	.....	.....	28 60	.....	J. Schmeltz.
8-12	Middle Paxton.	.....	.....	.....	.....	.....	.....	93 97	.....	J. S. Farver.
11	Upper Paxton.	.....	.....	.....	.....	.....	.....	17 90	.....	M. Knorr.
		.....	.....	.....	.....	.....	.....	66 85	.....	J. Lebo.
		.....	.....	.....	.....	.....	.....	5 75	.....	W. C. Mills.
		.....	.....	.....	.....	.....	.....	\$1,127 28	\$100 05	

TABLE I. DETAILED STATEMENT OF FOREST FIRES IN 1915—Continued.
ELK COUNTY.

Date.	Township.	Area Burned.		Damage to cut material, buildings, fences, etc.	Total damage.	Cause.		Cost of Extinction.		Fire Warden.
		State forest.	Private land.			Known.	Supposed.	From fire fund.	To individuals.	
April 15-16	Jay.	400			\$200	Incendiary.		\$91 60		L. Kirk.
17-18	Jones.	250			988	P. R. R.		14 34		C. W. Bowley.
19-20	Benzinger.	800			975	P. S. & N. R. R.		54 00	\$10 00	J. E. Zerby.
21-22	For.	75			1,000			28 60		C. Smithbauer.
23-24	Idgway.	1,500			20	P. S. & N. R. R.		507 80		S. Johnson.
25-26	Jones.	200			925			3 08		J. W. Bowley.
27-28	Fox.	200			600	Incendiary, R.		49 30		G. Smithbauer.
29-30	Benezette.	200			500	B. & S. R. R.		14 65	4 00	C. A. Swartz.
31-32	Highland.	100			700	Lightning.		27 63		C. E. Zerby.
33-34	Jones.	1			10	P. S. & N. R. R.		57 60		S. Johnson.
35-36	Fox.	60			75	Burning brush.		14 90		G. W. Bowley.
37-38	Jay.	50			62			7 08		J. E. Zerby.
39-40	Expenses incurred in investigating fire wardens.									C. E. Zerby.
May 1-15								\$872 46	\$14 00	
June 1-15										

FAYETTE COUNTY

Mar. 13	Bullskin.	30			\$50	Boys.		\$4 55		E. C. Myers.
Mar. 14	North Union.	104			\$5	Incendiary.		2 80		J. C. Morgan.
Mar. 15	Connellsville.	50			25	Unknown.		9 85		N. C. Beatty.
Mar. 16	North Union.					Boys.		12 40		J. C. Beatty.
Mar. 17						Incendiary.				

Mar. 18	Connellsville.	200				Incendiary.		13 45		N. Morgan.
Mar. 19	Georges.	300						14 40		N. Morgan.
Mar. 20	Connellsville.	1,000			2,000	Incendiary.		72 55		G. Harding.
Mar. 21	Connellsville.	70			1,100	Burning stumps.		8 15		N. Morgan.
Mar. 22	Henry Clay.	100			258	Hunters.		11 15		N. Morgan.
Mar. 23	Bullskin.	25			15			6 65		J. H. Humberston.
Mar. 24	Wharton.	150						11 80		E. C. Myers.
Mar. 25	Georges.	50						8 29		Wm. Chisnell.
Mar. 26	Stewart.	2,334			\$42			14 30		G. Harding.
Mar. 27								7 95		J. C. Beatty.
Mar. 28								8 87		J. C. Beatty.
Mar. 29								\$37 06		

FOREST COUNTY.

April 21-23	Tionesta.	2,266			\$190	Burning brush.		\$77 65		Asa W. Heath.
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FRANKLIN COUNTY

Mar. 30	Quincy.	30			\$10	Incendiary.		\$2 07	54	L. Staley.
Mar. 31	Fannett.	50			5	Incendiary.		13 80	27	C. H. Burk.
Mar. 1	Quincy.	9			4	Incendiary.		90	95	L. E. Staley.
Mar. 2	Quincy.	4			8	Incendiary.			48	L. E. Staley.
Mar. 3	Quincy.	2			8	Incendiary.		2 85	93	L. E. Staley.
Mar. 4	Green.	6			6	Incendiary.		85	1 18	R. G. Conklin.
Mar. 5	Green.	1.5			4	Incendiary.		71	1 29	L. E. Staley.
Mar. 6	Green.	1			30	Incendiary.		30 35	18	C. H. Burk.
Mar. 7	Fannett.	100			765	Incendiary.		66 60		A. E. Rupp.
Mar. 8	Montgomery and Warren.	255			100	Incendiary.		5 05	4 25	L. E. Staley.
Mar. 9	Quincy.	3			23	Incendiary.		1 46	2 26	L. E. Staley.
Mar. 10	Quincy.	16.5			23	Incendiary.		1 15		H. L. Thomas.
Mar. 11	Washington.	10			780	Incendiary.		32 64		L. A. Zimmerman.
Mar. 12	Peters and Warren.	200			24	Incendiary.		15 90	10 90	A. E. Rupp.
Mar. 13	Metall.	4			60	Accidental.		2 68		L. E. Staley.
Mar. 14	Quincy.	15			100	Incendiary.		15 03	27 55	L. E. Staley.
Mar. 15	Quincy.	65			400	Carelessness.		6 70	1 25	H. L. Thomas.
Mar. 16	Quincy.	150						8 50		H. L. Thomas.

TABLE I. DETAILED STATEMENT OF FOREST FIRES IN 1915—Continued.
FRANKLIN COUNTY—Continued.

Date.	Township.	Area Burned.		Damage to cut material, buildings, fences, etc.	Total damage.	Cause.		Cost of Extinction.		Fire Warden.
		State forest.	Private land.			Known.	Supposed.	From fire fund.	To individuals.	
10	Quincy,	1.5	1.5	.....	6	Incendiary,	Fishermen,	71	1 17	L. E. Staley.
15	Quincy, .....	.....	.....	.....	5	Burning brush, .....	.....	28 80	75	H. L. Thomas.
17	Letterkenny,	30	30	.....	235	Burning brush, .....	.....	16 00	4 75	A. E. Rupp.
17	Letterkenny,	25	25	.....	50	Burning brush, .....	.....	155 98	21 90	A. E. Rupp.
17-19	Letterkenny,	20	20	.....	225	Incendiary, .....	.....	.....	40 95	{ R. G. Cooklin. W. L. Eckenrode. W. E. Perry.
18-19	Green,	250	250	.....	1,250	Incendiary, .....	.....	55 39	90	A. E. Rupp.
19	Montgomery,	200	200	.....	450	Burning house, .....	.....	49 03	1 44	H. L. Thomas.
19	Quincy,	100	100	.....	350	Lightning, .....	.....	12 73	.....	A. E. Rupp.
20	Metal and Letterkenny,	80	80	.....	160	Lightning, .....	.....	63 10	.....	E. S. Newton.
20-22	Letterkenny,	1,000	1,000	\$50	1,025	Clearing, .....	.....	64 20	.....	{ E. S. Newton. D. L. Sentman. C. H. Burk.
20-22	{ Letterkenny,	800	800	.....	.....	.....	.....	96 59	2 70	H. L. Thomas.
22	Washington,	80	80	.....	200	.....	.....	11 50	1 28	A. E. Rupp.
22	Washington, .....	.....	.....	.....	150	.....	.....	10 30	.....	H. L. Thomas.
22	Washington,	75	75	.....	350	.....	.....	23 40	.....	A. E. Rupp.
25	Metal,	175	175	.....	50	.....	.....	7 16	6 93	L. E. Staley.
25	Washington,	35	35	.....	4	Lightning, .....	.....	2 51	.....	A. E. Rupp.
30	Guilford,	1	1	.....	50	Lightning, .....	.....	6 83	18	A. E. Staley.
May	Montgomery,	25	25	.....	1	Incendiary, .....	.....	.....	33	H. L. Thomas.
May	Quincy,	1	1	.....	5	Hunter, .....	.....	42	.....	{ J. V. Hornbaker. Benj. Shives.
Dec.	Washington,	3	3	.....	350	.....	.....	105-75	26 25	A. E. Rupp.
Nov.	Montgomery,	700	700	.....	90	Steam shovel, .....	.....	9 09	60	A. E. Rupp.
1-3	Peters,	45	45	.....	.....	Children, R., .....	.....	68	35	L. E. Staley.
2	Peters,	1	1	.....	.....	C. V. R., .....	.....	50 75	.....	D. L. Sentman.
2-3	Quincy,	2	2	.....	2	Incendiary, .....	.....	11 03	.....	C. H. Burk.
2-3	Lurgan,	240	240	.....	360	.....	.....	.....	18	L. E. Staley.
3-4	Fannett,	300	300	.....	50	.....	.....	.....	10	L. E. Staley.
4	Quincy,	1	1	.....	1	Incendiary, .....	.....	.....	.....	.....
6	Quincy,	1	1	.....	1	Incendiary, .....	.....	.....	.....	.....

*Set by a deaf mute. Arrested and tried. Acquitted by a sympathetic jury but made to pay half the costs.

FULTON COUNTY.

Date	Location	No.	Value	Total Value
April 7-9 18	Belfast,	1,000	\$300	\$67 75
	Licking Creek,	20	100	
	Wells,	1,000	2,800	
May 20-21 24-26	Dublin,	30	200	\$23 80
	Licking Creek,	600	2,000	
	Brush Creek,	1,000	94 55	
May 4 Nov. 6	Wells,	2	6	\$312 88
	Dublin,	20	60	
			\$1,172	\$23 70
			\$6,466	

HUNTINGDON COUNTY.

Mar.	27	Lincoln.	4	\$5	\$15	J. & S. R. R.,	\$3 70	R. R. Maloney.
April	6-7	Todd,	60	80	404		6 37	W. E. Hought.
	9-10	Shirley,	81	30			32 25	A. R. McCarthy.
	9-10	Todd,	60		30	J. & S. R. R.,	18 30	W. E. Hought.
	12-22	Todd,	2,000	1,050		J. & S. R. R.,	166 47	A. Saylor.
	15	Jackson,	1		16,000	Fishermen,	\$1 30	W. D. Ludwig.
	15	Oncida,	10	100		Burning stumps,	4 20	T. R. Morton.

INDIANA COUNTY.JEFFERSON COUNTYJUNIATA COUNTY[illegible]

TABLE I. DETAILED STATEMENT OF FOREST FIRES IN 1915—Continued.

LACKAWANNA COUNTY.

Date.	Township.	Area Burned.		Damage to cut material, buildings, fences, etc.	Total damage.	Cause.		Cost of Extinction.		Fire Warden.
		State forest.	Private land.			Known.	Supposed.	From fire fund.	To individuals.	
Mar. 3-4	Archbald Boro.,		3		\$3	Mine engine,		\$15 85		P. F. Gallagher.
April 14	Ransom,		100		200			23 50		H. J. Beagle.
15										
16										
20										
25										
28										
18-19	Ransom,		150		10			10 00		H. Frost.
25-27	Carbondale,		600		500	W. B. C. E. R. R.,		34 65		A. J. Robinson.
30			250		500	W. B. C. E. R. R.,		28 40		J. W. Haines.
30	Spring Brook,				350	Incendiary.		8 95		J. P. Moore.
30	Jefferson,		25		200			11 40		F. Larned.
30	Covington,		60					5 85		H. J. Beagle.
May 30	Ransom,		1,218		\$1,263			\$139 20		
Oct. 30										
Nov. 2										

LANCASTER COUNTY.

Mar. 29	Penn.,		50		\$7,000	Cornwall R. R.,		\$7 95		J. H. Boyer.
April 9	East Earl,		1,500					86 55		M. H. Grube.
14	West Donegal,		606			Smoker,		90 63	\$32 25	J. S. Daveler.
18	Elizabeth,		100					8 55		C. G. Enck.
22	Elizabeth,		1	\$4	10	Hunters,				I. Horst.
Nov. 1	Salisbury,		2,257	\$4	\$7,010			\$193 68	\$32 25	P. J. Bair.

LAWRENCE COUNTY.

Nov. 1	Taylor,		6	\$20	\$100			\$6 80		J. R. Wright.
11	Taylor,		4	7	107			6 25		J. R. Wright.
			10	\$27	\$207		Hunters,	\$13 05		

LEBANON COUNTY.

Mar. 29	Union,		2			P. & R. R. R.,		\$3 07		H. L. Felty.
31	Union,		4,480			S. & S. R. R.,		198 14		H. L. Felty.
April 1	Cold Spring and					Previous fire,				
4	East Hanover,		30			Previous fire,		9 43		H. L. Felty.
8	Union,		12	\$14	\$219	Burning brush,		10 06		L. S. Moyer.
8	Swatara,		35	200	550	Smoker,		11 35		Wm. Nelson.
17	Cornwall,		2,000	3,050	8,050	Flower pickers,		\$174 80	\$163 15	J. G. Stover.
18-21	South Lebanon and Heidelberg,		6,559	\$3,264	\$8,819			49 63	48 60	I. Horst.
								\$1 30		
								\$548 45	\$226 75	

LEHIGH COUNTY.

April 1	Washington,		10		\$3,200	Burning brush,		\$8 30		J. Dorward.
7-8	Upper Saucon,		150	\$20	\$3,000			60 25		J. H. Rabert.
8-10	Lynn,		2,000	10	30,000	L. V. R. R.,		90 56		G. Dorward.
9	Washington,		4			Blasting,		25 10		J. Dorward.
9	Heidelberg,		1,000		1,000	Incendiary,		1 90		B. Scharles.
14	Salisbury,		10		500			10 28		G. H. Rabert.
17	Lynn,		25		800	Burning brush,		25 10		B. Scharles.
19-20	Salisbury,		135		900	L. & N. E. R. R.,		80 85		J. Dorward.
19-22	Washington,		1,800		517			26 90		J. Dorward.
25-27	Heidelberg,		130	17	50			10 45		G. H. Rabert.
May 11	Lynn,		600					3 53		J. J. Mory.
Nov. 10	Upper Saucon,		9		\$35,567			\$343 47		

TABLE I. DETAILED STATEMENT OF FOREST FIRES IN 1915—Continued.
LUZERNE COUNTY.

LUZERNE COUNTY.										
Date.	Township.	Area Burned.		Damage to cut material, buildings, fences, etc.	Total damage.	Cause.		Cost of Extinction.		Fire Warden.
		State forest.	Private land.			Known.	Supposed.	From fire fund.	To individuals.	
Mar. 3	Shickshinny Boro.	.....	.....	.....	.....	.....	.....	.....	.....	G. B. Robbins.
Mar. 4	Laurel Run Boro.	.....	.....	.....	\$10	.....	.....	.....	\$9 05	Geo. Bower.
Mar. 27	Laurel Run Boro.	.....	.....	.....	15	.....	.....	.....	5 35	Geo. Bower.
Mar. 28	Foster, .....	.....	.....	.....	100	.....	.....	.....	4 50	R. Handlong.
Mar. 28	Wright and	.....	.....	.....	55	.....	.....	.....	7 75	.....
Mar. 28	Fairview .....	.....	.....	.....	.....	.....	.....	.....	8 40	H. R. Williams.
Mar. 28	Bear Creek .....	.....	.....	.....	50	.....	Railroad,	.....	7 75	A. F. Bond.
Mar. 28	Duryea Boro., .....	.....	.....	.....	400	.....	Railroad,	.....	7 75	H. R. Handlong.
Mar. 28	Foster, .....	.....	.....	.....	1,750	.....	.....	.....	5 70	R. K. Handlong.
Mar. 28	Salem, .....	.....	.....	.....	.....	.....	.....	.....	85 85	G. B. Robbins.
Mar. 28	Bear Creek, Boro., .....	.....	.....	.....	.....	.....	Incendiary,	.....	39 30	A. F. Bond.
Mar. 28	Shickshinny Boro., .....	.....	.....	.....	.....	.....	.....	.....	5 85	G. B. Robbins.
Mar. 28	Laurel Run Boro., .....	.....	.....	.....	.....	.....	.....	.....	10 85	Geo. Bower.
Mar. 28	Conyngham, .....	.....	.....	.....	.....	.....	.....	.....	4 75	N. W. Bloss.
Mar. 28	Plymouth, .....	.....	.....	.....	.....	.....	.....	.....	20 25	A. B. Warman.
Mar. 28	Foster, .....	.....	.....	.....	.....	.....	.....	.....	1 75	R. Handlong.
Mar. 28	Jackson, .....	.....	.....	.....	.....	.....	.....	.....	16 50	C. W. Ehret.
Mar. 28	Conyngham, .....	.....	.....	.....	.....	.....	.....	.....	6 25	N. W. Bloss.
Mar. 28	Laurel Run Boro., .....	.....	.....	.....	.....	.....	.....	.....	6 25	Geo. Bower.
Mar. 28	Fairmount, .....	.....	.....	.....	.....	.....	.....	.....	10 40	W. Blaine.
Mar. 28	Conyngham, .....	.....	.....	.....	.....	.....	.....	.....	15 60	N. W. Bloss.
Mar. 28	Bear Creek, .....	.....	.....	.....	.....	.....	.....	.....	31 75	A. F. Bond.
Mar. 28	Wright, .....	.....	.....	.....	.....	.....	.....	.....	19 15	F. Storm.
Mar. 28	Bear Creek, .....	.....	.....	.....	.....	.....	Incendiary,	.....	47 75	A. F. Bond.
Mar. 28	Duryea, .....	.....	.....	.....	.....	.....	.....	.....	76 70	H. Frost.
Mar. 28	Plymouth, .....	.....	.....	.....	.....	.....	.....	.....	5 75	A. B. Warman.
Mar. 28	Laurel Run, .....	.....	.....	.....	.....	.....	.....	.....	21 25	Geo. Bower.
Mar. 28	Bear Creek, .....	.....	.....	.....	.....	.....	.....	.....	35 25	A. F. Bond.
Mar. 28	Foster, .....	.....	.....	.....	.....	.....	.....	.....	8 30	R. Handlong.
Mar. 28	Duryea Boro., .....	.....	.....	.....	.....	.....	.....	.....	5 60	H. Frost.
Mar. 28	Foster, .....	.....	.....	.....	.....	.....	.....	.....	14 15	R. Handlong.

May 25-27	Sugarloaf,		900	\$1,600	5,000	Burning R. R. car.,		114 75		A. Lucki.
May 28	Laurel Run,		5					3 65		Geo. Bower.
May 28	Sugarloaf and Hollenback,		400		2,000	Burning automobile,		1 60		H. Frost.
May 28	Buck,		200		800			62 40		A. Lucki.
May 28	Union,		400		2,000	D. L. & W. R. R.,		36 75		Wm. Dutter.
May 28	Salem,		7		15			21 85		N. B. Garrison.
May 28	Union,		5		45			23 10		G. B. Robbins.
May 28	Plymouth,		18		12			10 60		G. B. Robbins.
May 28	Ransom,		25					9 34		A. B. Warman.
May 28	Duryea Boro.,		35					5 90		H. E. Frost.
May 28	Bear Creek,		45					4 04		H. E. Frost.
May 28	Duryea Boro.,		8			Hunters,		3 79		H. E. Frost.
May 28	Buck,		19		250			30 50		A. F. Bond.
May 28	Plymouth,		12		24			5 79		H. E. Frost.
May 28	Duryea Boro.,		25					21 45		Wm. Dutter.
May 28	Buck,		12					8 13		A. B. Warman.
May 28	Duryea Boro.,		12					9 24		H. E. Frost.
May 28	Buck,		135		700			3 25		H. E. Frost.
May 28	Bear Creek,		400			L. V. R. R.,		39 50		Wm. Dutter.
May 28	Plymouth,		10		15			30 85		A. F. Bond.
May 28			7,437	\$1,628	\$16,327			3 78		A. B. Warman.

LYCOMING COUNTY.

Mar. 15-16	Watson,		90		\$175	Railroad,		\$5 25		H. T. Harris.
Mar. 16	Armstrong,		20		80			16 10		W. H. Manley.
Mar. 16	McIntyre,		150		300			3 25		E. W. Reed.
Mar. 16	Cummings,		10					18 80		H. C. Evans.
Mar. 16	Cummings and McHenry,		14		100			8 90	\$97 09	W. H. Manley.
Mar. 16	Armstrong,		90		300			5 25		H. T. Harris.
Mar. 16	Watson,		50					9 25		H. C. Evans.
Mar. 16	McHenry,		50		100			20 07	19 20	E. H. Smith.
Mar. 16	Limestone,		*					8 55	6 20	W. Gray.
Mar. 16	Wolf,		20		300			25 45	83 00	T. B. Emick.
Mar. 16	Plunketts Creek,		200		200			13 45		E. W. Reed.
Mar. 16	McIntyre,		300		50			25 25		H. T. Harris.
Mar. 16	Watson,		60		30			357 56	57 00	W. Moyer.
Mar. 16	Cascade,		3,000		25			13 80		H. C. Evans.
Mar. 16	Shrewsbury,		27		100			50 35		J. W. Feister.
Mar. 16	McHenry,		400		100			6 25		H. T. Harris.
Mar. 16	Watson,		1,200					156 05	82 60	H. C. Evans.
Mar. 16	McHenry,		40					160 80		H. C. Evans.
Mar. 16	Watson and Cummings,		500		500			14 80		C. L. Buss.
Mar. 16	Limestone,		150					22 35		E. W. Reed.

TABLE I. DETAILED STATEMENT OF FOREST FIRES IN 1915—Continued.

LYCOMING COUNTY—Continued.

Date.	Township.	Area Burned.		Damage to cut material, buildings, fences, etc.	Total damage.	Cause.		Cost of Extinction.		Fire Warden.
		State forest.	Private land.			Known.	Supposed.	From fire fund.	To individuals.	
25	Loyalsock, .....	.....	5	.....	75	Incendiary, .....	.....	10 17	.....	W. T. Crider.
25	Armstrong, .....	.....	20	.....	300	Incendiary, .....	.....	12 00	.....	A. P. Decker.
25-27	McNett,	500	200	.....	300	.....	Incendiary,	3 51	314 40	E. W. Reed.
26	Mill Creek, .....	.....	150	.....	500	.....	.....	14 50	.....	C. E. Decker.
26-27	Mill Creek,	600	.....	.....	500	Incendiary, .....	.....	11 15	.....	W. P. Decker.
29	Armstrong, .....	.....	12	2,500	2,500	Sawmill, .....	.....	63 40	.....	A. P. Decker.
May 15	Upper Fairfield,	200	.....	.....	200	.....	.....	44 15	9 30	J. A. Bastian.
Oct. 30-31	Armstrong and Clinton, .....	.....	1.2	.....	.....	Lumbering, .....	.....	46 00	.....	W. H. Manley.
Nov. 1-2	Cummings, .....	.....	50	.....	201	Hunter, .....	.....	13 33	4 00	A. B. Wells.
1-3	McHenry,	50	.....	.....	100	Hunter, .....	.....	6 27	8 80	H. C. Evans.
2-3	Lewis, .....	.....	.....	.....	.....	Hunters, .....	.....	25 07	8 00	A. B. Wells.
13	Lewis, .....	.....	.....	.....	.....	Hunters, .....	.....	1 15	.....	W. B. Wells.
Dec. 11	Lewis, .....	.....	.....	.....	.....	Hunters, .....	.....	.....	40	A. B. Wells.
		2,704	6,303.5	\$2,775	\$6,806			\$1,104 13	\$689 90	

*Hundreds. †Incipient.

McKEAN COUNTY.

April 16	Sergeant, .....	.....	20	.....	.....	B. R. & P. R. R., ..	.....	\$14 75	\$7 50	D. O. Black.
17-24										
26										
May 15										
27										

MIFFLIN COUNTY.

Mar. 3	Armagh, .....	.....	2	.....	.....	L. & T. R. R., .....	.....	.....	.....	C. R. Meek.
4	Derry, .....	.....	350	.....	.....	P. R. R., .....	.....	.....	.....	E. L. Meek.
8	Armagh, .....	.....	.....	.....	.....	.....	.....	.....	.....	S. C. Bardine.
9	Wayne, .....	.....	150	.....	.....	.....	.....	.....	.....	E. L. Mertz.
9-10	Derry, .....	.....	100	.....	.....	.....	.....	.....	.....	E. L. Mertz.
15	Derry, .....	.....	800	.....	.....	K. V. R. R., .....	.....	.....	.....	J. Marker.
15-21	Brown and Granville, .....	.....	.....	.....	.....	.....	.....	.....	.....	E. L. Mertz.
17-21	Wayne, .....	.....	600	.....	.....	.....	.....	.....	.....	D. J. Hough.
19	Wayne, .....	.....	25	.....	.....	Incendiary, .....	.....	.....	.....	I. C. Dell.
25-26	Brown, .....	.....	350	.....	.....	.....	.....	.....	.....	S. C. Bardine.
25-27	Derry, .....	.....	250	.....	.....	.....	.....	.....	.....	J. Marker.
26-27	Armagh, .....	.....	700	.....	.....	.....	.....	.....	.....	D. K. Warfield.
26-27	Oliver, .....	.....	100	.....	.....	Burning brush, .....	.....	.....	.....	E. L. Mertz.
26-27	Oliver, .....	.....	200	.....	.....	Burning brush, .....	.....	.....	.....	D. K. Warfield.
27-28	Oliver, .....	.....	3	.....	.....	Burning brush, .....	.....	.....	.....	D. F. Kirk.
May 11	Wayne, .....	.....	35	.....	.....	Hunter, .....	.....	.....	.....	D. F. Kirk.
1-2	Armagh, .....	.....	300	.....	.....	.....	.....	.....	.....	A. R. McCarthy.
2-3	Oliver, .....	.....	.....	.....	.....	.....	.....	.....	.....	D. K. Warfield.
		137	3,968	\$50	\$8,538		Hunters,	39 30	\$285 70	

MONROE COUNTY.

Mar. 4	Pocono, .....	.....	25	.....	.....	D. L. & W. R. R., ..	.....	.....	.....	T. DeHaven.
28	Coolbaugh, .....	.....	100	.....	.....	D. L. & W. R. R., ..	.....	.....	.....	H. Shaller.
29-Apr. 1	Smithfield, .....	.....	1.5	.....	.....	D. L. & W. R. R., ..	.....	.....	.....	S. Shaller.
April 5	Paradise, .....	.....	35	.....	.....	Railroad, .....	.....	.....	.....	J. L. Strobeck.
9	Stroud, .....	.....	5	.....	.....	.....	.....	.....	.....	J. C. Wilson.
10	Paradise, .....	.....	2	.....	.....	Burning brush, .....	.....	.....	.....	J. L. Strobeck.
10	Barrett, .....	.....	1	.....	.....	.....	.....	.....	.....	J. L. Strobeck.
10	Middle Smithfield, .....	.....	1	.....	.....	.....	.....	.....	.....	G. H. Shaller.
14	Coolbaugh, .....	.....	1	.....	.....	.....	.....	.....	.....	S. T. DeHaven.
14	Pocono, .....	.....	3	.....	.....	.....	.....	.....	.....	C. Miller.
15	Smithfield, .....	.....	6	.....	.....	.....	.....	.....	.....	W. S. Lash.
16	Haulton, .....	.....	48	.....	.....	Burning brush, .....	.....	.....	.....	M. Possinger.
16	Coolbaugh, .....	.....	80	.....	.....	.....	.....	.....	.....	S. J. Mosier.
16	Smithfield, .....	.....	54	.....	.....	.....	.....	.....	.....	S. T. DeHaven.
17	Coolbaugh, .....	.....	.....	.....	.....	.....	.....	.....	.....	C. Wilson.
17	Paradise, .....	.....	.....	.....	.....	.....	.....	.....	.....	M. Possinger.
18	Coolbaugh, .....	.....	100	.....	.....	D. L. & W. R. R., ..	.....	7 00	.....	

TABLE I. DETAILED STATEMENT OF FOREST FIRES IN 1915—Continued.

MONROE COUNTY—Continued.

Date.	Township.	Area Burned.		Damage to cut material, buildings, fences, etc.	Total damage.	Cause.		Cost of Extinction.		Fire Warden.
		State forest.	Private land.			Known.	Supposed.	From fire fund.	To individuals.	
18 18-20	Barrett, Price and Middle Smithfield.	.....	2,500	.....	4,000	Railroad.	.....	157 37	.....	C. Wilson.
19	Tunkhannock.	.....	150	.....	.....	Fishermen.	.....	10 06	.....	J. L. Strobeck.
20	Tunkhannock.	.....	25	.....	.....	Clearing.	.....	5 26	.....	W. F. Herman.
21	Paradise.	.....	12	.....	.....	D. L. & W. R. R.	.....	9 55	.....	W. F. Herman.
21	Tunkhannock.	.....	2,000	.....	2,200	Sawmill.	.....	33 59	.....	M. Possinger.
21	Tunkhannock.	.....	.....	.....	.....	.....	.....	2 18	.....	W. F. Herman.
21	Tunkhannock.	.....	10	.....	50	Burning pasture.	.....	53 15	.....	H. G. Shaller.
21-22	Hamilton.	.....	500	.....	2,100	Railroad.	.....	1 80	.....	G. H. Shaller.
22	Paradise.	.....	4	.....	50	Fishermen.	.....	2 15	.....	S. T. DeHaven.
22	Pocono.	.....	1	.....	.....	.....	.....	6 86	.....	J. Learn.
22	Pocono.	.....	3	.....	3,000	.....	.....	41 51	.....	W. F. Herman.
24	Coolbaugh.	.....	2,500	.....	3,500	Fishermen.	.....	15 55	.....	M. Possinger.
25	Barrett.	.....	3,600	.....	3,500	Fishermen.	.....	33 88	.....	J. L. Strobeck.
25-26	Middle Smithfield.	.....	500	.....	210	Fishermen.	.....	73 85	.....	S. J. Mosier.
26-30	Pocono, Tunkhannock and Chestnut Hill.	.....	24	.....	.....	.....	.....	4 20	.....	J. K. Tittle.
27	Pocono.	.....	6	.....	.....	Previous fire.	.....	2 40	.....	L. George.
May 8	Coolbaugh.	.....	4	.....	.....	W. B. & E. R. R.	.....	4 10	.....	S. T. DeHaven.
May 10	Pocono.	.....	.....	.....	.....	.....	.....	.....	.....	S. T. Shaller.
May 14	Pocono.	.....	.....	.....	.....	W. B. & E. R. R.	.....	.....	.....	S. T. DeHaven.
May 20	Paradise.	.....	.....	.....	.....	W. B. & E. R. R.	.....	.....	.....	S. T. DeHaven.
Oct. 24	Delaware Water Gap.	.....	.....	.....	.....	Railroad.	.....	1 35	.....	G. H. Shaller.
Nov. 12-15	Tobyhanna.	.....	.....	.....	.....	Burning hotel.	.....	26 50	.....	E. C. Wallace.
Nov. 18	Salaries of patrolmen during spring of 1915.	.....	.....	.....	.....	Railroad.	.....	325 00	.....	S. T. DeHaven.
	Salaries of patrolmen during fall of 1915.	.....	.....	.....	.....	.....	.....	300 25	.....	J. L. Strobeck.

Expenses of John L. Strobeck, District Forester.	.....	.....	.....	.....	.....	.....	.....	43 58	.....	J. L. Strobeck.
One-half expenses of the Pocono Protective Fire Association, per W. R. Fisher, Secy.								14 51		W. R. Fisher.
								\$1,283 10	\$5 55	

MONTOUR COUNTY.

April 4	Liberty.			12	\$150	\$210	P. & R. R. R.		\$9 70	C. H. Diehl.
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NORTHAMPTON COUNTY.

Feb. 20-21	Washington.			65	\$150	\$450			\$21 23	Miller.
Mar. 22-23	Upper Mount Bethel.		190			500			64 83	L. Miller.
Mar. 29-Apr. 1	Upper Mount Bethel.	.....	200	.....	.....	.....	.....	.....	.....	W. S. Lash.
April 18	Plainfield.	.....	.....	.....	.....	210	.....	.....	9 06	H. G. Brewer.
April 18	Banger Boro.	.....	15	.....	.....	275	.....	.....	.....	L. Miller.
April 19	Upper Mount Bethel.	.....	108	.....	.....	300	.....	.....	40 80	L. Miller.
Nov. 8	Lehigh.	.....	500	.....	.....	1,000	Hunters.	.....	23 55	A. J. Andrews.
		.....	1,003	.....	.....	\$2,735	.....	.....	\$180 28	A. J. Andrews.

NORTHUMBERLAND COUNTY.

April 1	Shamokin and Zerbe.	.....	.....	100	.....	\$500	.....	.....	\$4 50	A. H. Swank.
1-2	Zerbe.	.....	.....	600	.....	.....	.....	.....	31 50	R. Machamer.
4	Snyderstown Boro.	.....	.....	13	.....	.....	.....	.....	11 10	E. C. Wagner.
20	Zerbe.	.....	.....	300	.....	.....	.....	.....	37 25	A. H. Swank.
25-27	Washington and Little Mahanoy.	.....	.....	900	.....	6,050	.....	.....	46 05	H. C. Hefelfinger.

TABLE I. DETAILED STATEMENT OF FOREST FIRES IN 1915—Continued.
NORTHUMBERLAND COUNTY—Continued.

Date.	Township.	Area Burned.		Damage to cut material, buildings, fences, etc.	Total damage.	Cause.		Cost of Extinction.		Fire Warden.
		State forest.	Private land.			Known.	Supposed.	From fire fund.	To individuals.	
26-27 Oct. 27 28-29 Nov. 1-3	Zerbe and Little Mahanoy, Washington, Washington, Snydertown Boro.,	..... ..... ..... .....	2,500 80 60 65	\$340 \$240	5,340 \$12,285	P. & K. R. R.,	Hunters, Hunters,	16 30 31 45 12 45 53 20	..... ..... ..... .....	B. Machamer, H. C. Hefelfinger, H. C. Hefelfinger, E. C. Wagner.
			4,618					\$244 20		

PERRY COUNTY—Continued.

Mar. 24	Center, .....	.....	.....	\$5	.....	Railroad, .....	.....	\$2 30	.....	G. Fry.
Mar. 28	Center, .....	.....	.....	33	.....	.....	.....	7 80	.....	S. G. Fry.
April 4	Saville,	375	.....	.....	.....	.....	.....	14 85	.....	S. F. Reisinger.
4-5	Millerstown Boro.,	12	.....	.....	.....	.....	.....	15 15	.....	J. R. Wright.
6-8	Saville,	400	.....	11	1,000	.....	.....	37 55	.....	J. R. Wright.
8-9	Miller,	155	.....	.....	.....	Logging engine, .....	.....	86 30	.....	S. G. Fry.
8-9	Saville,	10	.....	.....	.....	.....	.....	7 50	.....	J. F. Reisinger.
8-9	Liverpool,	40	.....	.....	.....	.....	.....	33 90	.....	G. Long.
8-9	Toboyne,	30	.....	.....	.....	Burning brush, .....	.....	19 52	.....	D. W. Sheaffer.
9	Carroll,	5	.....	.....	.....	.....	.....	8 06	.....	J. Baxter.
9-10	Center,	500	.....	.....	.....	Burning brush, .....	.....	18 90	.....	S. G. Fry.
14	Buffalo and Watts,	50	.....	.....	.....	Railroad, .....	.....	187 65	.....	S. I. Rhoads.
15	Madison,	30	.....	.....	.....	.....	.....	9 30	.....	M. G. Hench.
15	Greenwood,	50	.....	.....	.....	Clearing, .....	.....	6 35	.....	J. R. Wright.
19	Watts and Buffalo,	50	.....	.....	.....	.....	.....	4 10	\$3 20	A. R. Thompson.
21-22	Center, .....	.....	.....	.....	.....	Railroad,	Incendiary,	22 02	.....	S. G. Fry.
	Toboyne,	1,150	.....	.....	300	.....	.....	.....	.....	E. P. Hassinger.

22	Toboyne,	100	.....	.....	35	.....	.....	19 70	.....	C. H. Burk.
24	Tyrone, .....	.....	.....	.....	.....	.....	.....	12 65	.....	B. F. Lightner.
May 11	Watts,	150	.....	.....	.....	.....	.....	5 75	.....	A. R. Thompson.
Oct. 25	Toboyne,	75	.....	.....	.....	.....	.....	2 06	.....	J. H. Ziegler.
31	Tyrone,	450	.....	.....	675	.....	Incendiary,	8 80	.....	B. F. Lightner.
Nov. 3	Madison and Jackson, .....	.....	.....	.....	.....	.....	.....	244 98	.....	D. W. Sheaffer.
	Watts, .....	.....	.....	.....	.....	.....	.....	8 50	.....	B. F. Lightner.
Nov. 2-3	Madison,	75	.....	.....	.....	.....	Hunters,	24 55	.....	M. G. Hench.
2-3	Jackson,	50	.....	.....	.....	Incendiary, .....	.....	63 99	.....	A. R. Thompson.
3	Spring,	100	.....	.....	.....	Hunters, .....	.....	4 93	.....	D. W. Sheaffer.
5	Rye,	100	.....	.....	.....	.....	.....	47 95	.....	J. Baxter.
Dec. 1	Lower Milfin,	100	.....	.....	25	.....	.....	5 06	.....	W. Heisley.
		2,150	2,723.5	\$49	\$6,461	.....	.....	\$951 40	\$3 20	B. F. Lightner.

PIKE COUNTY.

Mar. 28	Palmyra, .....	.....	200	.....	\$10	Burning house, .....	.....	\$7 45	.....	E. Avery.
28	Delaware, .....	.....	4	.....	.....	Burning brush, .....	.....	7 06	.....	J. T. Shepherd.
31	Lackawaxen,	100	.....	.....	500	Burning brush, .....	.....	5 60	.....	C. R. Rosencrance.
April 14	Dingman, .....	.....	5	.....	10	.....	Fishermen,	85	.....	J. W. Kiesel.
15-16	Lehman,	30	.....	.....	100	.....	.....	20 12	\$1 65	J. J. Miller.
16	Lackawaxen, .....	.....	20	.....	15	.....	.....	18 85	1 2	J. J. Avery.
17	Blooming Grove, .....	.....	3	.....	.....	.....	.....	8 55	8 40	J. J. Avery.
17-18	Delaware, .....	.....	700	.....	1,800	Burning brush, .....	.....	90 45	.....	C. R. Rosencrance.
18-20	Lackawaxen, .....	.....	30	.....	2,000	.....	.....	230 31	68 40	J. L. Strobeck.
19-20	Porter,	2,500	.....	.....	6,000	Fishermen, .....	.....	16 10	.....	C. R. Rosencrance.
19-20	Lackawaxen, .....	.....	1,000	.....	4,016	.....	.....	16 85	.....	J. T. Shepherd.
19-20	Porter, .....	.....	3,000	.....	.....	Burning brush, .....	.....	63 05	.....	T. Quick.
20-21	Westfall, .....	.....	1,800	.....	2,000	D. V. R. R., .....	.....	3 12	1 95	J. T. Mosier.
21	Lehman, .....	.....	5	.....	50	.....	.....	39 80	.....	S. J. Hunt.
21-22	Milford and Westfall,	800	.....	.....	1,500	.....	.....	33 65	.....	C. R. Rosencrance.
21-22	Shohola, .....	.....	1,500	.....	2,500	.....	.....	23 05	.....	J. T. Quick.
22	Westfall,	2,000	.....	.....	.....	.....	.....	26 50	4 80	J. E. Avery.
22	Lackawaxen, .....	.....	150	.....	.....	.....	.....	3 40	.....	J. W. Stadden.
23	Green,	500	.....	.....	1,000	.....	.....	10 00	4 50	J. L. Strobeck.
25	Dingman, .....	.....	2,900	.....	3,000	.....	Fishermen,	14 80	.....	J. W. Kiesel.
26-27	Dingman and Delaware, .....	.....	75	.....	750	Incendiary, .....	.....	18 17	.....	J. T. Shepherd.
28	Shohola, .....	.....	50	.....	.....	.....	Incendiary,	51 90	.....	H. Bradford.
May 6	Shohola, Milford & Westfall, .....	.....	.....	.....	.....	.....	.....	25 30	2 00	E. Avery.
6-7	Palmyra,	150	.....	.....	150	.....	.....	19 90	4 40	J. W. Kiesel.
10-11	Dingman,	125	.....	.....	.....	Incendiary, .....	.....	20 39	.....	W. L. Simonsen.
11	Lackawaxen,	125	.....	.....	500	.....	.....	19 40	.....	C. R. Rosencrance.
11	Lackawaxen,	300	.....	.....	.....	.....	.....	37 25	.....	C. R. Rosencrance.
11-12	Lackawaxen and Shohola,	1,000	.....	.....	1,650	.....	.....	.....	.....	.....

TABLE I. DETAILED STATEMENT OF FOREST FIRES IN 1915—Continued.
PIKE COUNTY—Continued.

Date.	Township.	Area Burned.		Damage to cut material, buildings, fences, etc.	Total damage.	Cause.		Cost of Extinction.		Fire Warden.
		State forest.	Private land.			Known.	Supposed.	From fire fund.	To individuals.	
June 5-6	Blooming Grove.	675	25		1,837	Burning brush.		62 90	18 90	J. E. Avery.
Oct. 29	Lackawaxen.		75		100	Clearing.		16 15	75	W. L. Simonson.
Nov. 8	Greene.		1.5					1 60	90	T. H. Gilpin, Jr.
		6,155	16,883.5	\$386	\$30,038			\$928 86	\$117 85	

*Miles.

POTTER COUNTY.

April 9	Eulalia.		104		\$50	C. & P. A. R. R.		\$5 75		Emil Mosch.
12	Eulalia.		40		20	Burning brush.		4 95		B. A. Matteson.
13	Eulalia.		225		85	Burning brush.		20 20		B. A. Matteson.
14-15	Eulalia.		75		18	C. & P. A. R. R.		8 65		B. A. Matteson.
17-19	Stewardson.				10		Fishermen.	30 85	13 00	T. H. Golden.
18	Genesee.	20			20			5 25		A. B. Collier.
18-21	Galeton and Pike.		150		300		Fishermen.	46 90		F. D. Leach.
18-22	Ulysses.		350		350			53 90	4 00	(R. L. Ayres.
19-22	Sweden.		225		225	Burning brush.		29 50		C. F. Wells.
21	Gaines.		150					2 75		T. D. McCracken.
21	Summit.		2							A. O. Baker.
21-22	Allegheny and Hebron.		200		75	Burning brush.		13 25		E. Mosch.
21-23	Hebron.		150		350			11 55		M. A. Harvey.
24-25	Sweden.		300			Burning brush.		12 06	2 70	A. W. Snyder.
24-25	Summit.		15		20					A. O. Baker.
25	Wharten.		20		700					G. S. Perry.
25-26	Hector.		200							R. H. Loucks.

25-27	Sweden and Ulysses.				12,000			5 95		R. L. Emerick.
26	Abbott.		6			Lightning.		27 40		D. F. Smith.
26	Summit.					Fallow fire.		51 10		C. F. Wells.
29-30	Portage.		4			Lightning.		23 75	4 20	H. O. VanHorn.
May 11	Sylvania.		35			Burning log heap.		4 00		A. O. Baker.
May 11-14	Stewardson.		300		25	Burning brush.		18 00	2 40	W. B. Evans.
June 5-8	Wharton.		70		565	Burning brush.		48 25	21 90	I. H. Fox.
June 12	Sharon.		100		125	Burning brush.		13 85		E. S. Caldwell.
18	Summit.		2			Fallow fire.		4 65		C. O. Miller.
18-19	Sylvania.		1.5			Lightning.		2 75		J. C. Shoff.
24-25	Abbott.		365		18		Hunters.	5 75		A. O. Baker.
			4,479.5	\$4,800	\$15,038			\$524 25	\$58 80	A. Bratz.

SCHUYLKILL COUNTY.

Mar. 3	St. Clair Boro.		15		\$10	Railroad.		\$24 25		T. Weiss.
25	West Mahanoy.		10		80	Railroad.		1 75		W. Hoffman.
26-27	East Norwegan.		100		7	P. & R. R. R.		30 00		T. Weiss.
April 2	West Mahanoy.		100		200	Trespassers.		3 60		W. Heffner.
4	Manheim.		25					9 65		L. Blankenhorn.
8	West Mahanoy.		100		200			2 05		W. Heffner.
8-9	East Norwegan.		18		700	P. & R. R. R.		42 55		T. Weiss.
18	West Norwegan.		70		1,050	L. V. R. R. R.		27 75		F. Koenig.
18	East Union.		2,900		29,000	P. & R. R. R.		121 00		M. Houser.
18	Ryan, Blythe and Schuylkill.		1,200		600	Fishermen.		52 75		A. Ellis.
18-19	Union.		500		2,500	P. & R. R. R.		92 35		J. P. Shoup.
19	West Mahanoy.		50		1,000	Trespassers.		2 65		W. Heffner.
19-20	East Norwegan.		25		1,000	Railroad.		49 00		T. Weiss.
20-23	Washington, Pine Grove and Wayne.		2,000		15,000			127 85		S. Lelsey.
21-22	Wayne.		4,000		60,000			63 43		H. W. Dietrich.
22	West Norwegan.		23		4,000	P. & R. R. R.		29 45		H. W. Dietrich.
22	Eldred.		50		1,350	Lightning.		15 00		F. Koenig.
26	Wayne.		600		6,000	Incendiary.		33 55		C. B. Maurer.
30	Barry and Foster.		2,115		7,000	Lightning.		157 50		H. W. Dietrich.
May 17	Eldred.		30		100	P. R. R. R.		5 75		C. H. Morgan.
July 19	Butler.		30		1,800	Railroad.		26 50		J. P. Shoup.
Oct. 29	New Castle.		20		1	P. & R. R. R.		3 30		T. Weiss.
Nov. 1	East Norwegan.		25		200	P. & R. R. R.		4 85		J. P. Shoup.
3	Union.		5		135	Railroad.		13 07		C. B. Maurer.
11	Butler.		50					\$992 25		

SOMERSET COUNTY.

SOMERSET COUNTY.									
April 15	Jefferson,	15	.....	.....	.....	.....	.....	.....	V. M. Bear.
19	Somerset,	112	.....	\$544	Burning brush,	.....	.....	.....	C. E. Shafer.
19	Farhope,	150	.....	2,544	Traction engine,	.....	.....	.....	R. C. Enrick.
19	Paint,	11	.....	200	B. & O. R. R.,	.....	.....	.....	J. H. Hummel.
19	Shade,	1,200	.....	800	.....	.....	.....	.....	J. H. Hummel.
19-20	Paint,	115	.....	500	.....	.....	.....	.....	C. E. Shafer.
26	Somerset,	3	.....	5,717	Railroad,	.....	.....	.....	H. I. Troutman.
May 11	Southern and Northampton,	10	.....	30	Logging engine,	.....	.....	.....	V. M. Bear.
14	Lincoln,	8	.....	8	Burning brush,	.....	.....	.....	V. M. Bear.
15	Lincoln,	35	.....	21	Logging engine,	.....	.....	.....	V. M. Bear.
19-20	Lincoln,	70	.....	42	Logging engine,	.....	.....	.....	C. P. Benson.
19-20	Jefferson,	80	.....	200	.....	.....	.....	.....	V. M. Bear.
10-15	Conemaugh,	1	.....	175	P. W. & S. R. R.,	.....	.....	.....	V. M. Bear.
28	Lincoln,	50	.....	50	B. & O. R. R.,	.....	.....	.....	E. Goulder.
Nov. 1-2	Jenner,	25	.....	50	.....	.....	.....	.....	V. M. Bear.

SULLIVAN COUNTY.

Date	Particulars	Debit	Credit	Balance
April 5	Cherry.	50		
8	Cherry.	40		
9-10	Cherry.	75		
23	Laporte.	1		
June 3	Lopez.		5	
6	Colley.			
8	Laporte.	30		
Nov. 3	Davison.	100		
				301

SUSQUEHANNA COUNTY.

TIoga County.

			\$20	N. Y. C. R. R.	N. Y. C. R. R.	J. W. Keller.
April 4	Morris,	40	12	N. Y. C. R. R.	.....	\$9 80
13	Morris,	3	12	E. R. R.	.....	2 20
14-15	Morris,	30	16	E. R. R.	.....	J. W. Keller.
17-18	Duncan,	10	6	E. R. R.	.....	J. W. Keller.
17-18	Morris,	6	6	E. R. R.	.....	J. W. Keller.
					.....	5 80
					.....	3 40
					.....	2 85
					.....	3 85
					.....	J. W. Keller.
					.....	J. W. Keller.
					.....	J. W. Keller.

TABLE I. DETAILED STATEMENT OF FOREST FIRES IN 1915—Continued.
TIOGA COUNTY—Continued.

Date.	Township.	Area Burned.		Damage to cut material, buildings, fences, etc.	Total damage.	Cause.		Cost of Extinction.		Fire Warden.
		State forest.	Private land.			Known.	Supposed.	From fire fund.	To individuals.	
17-18	Delmar.	.....	20	.....	40	Children.	.....	8 80	2 40	J. W. Keller.
19	Delmar.	.....	2	.....	4	.....	.....	33 85	5 40	J. G. Highland.
20-22	Ward, Union & Hamilton.	.....	2,720	.....	8,100	N. Y. C. R. R.	.....	21 80	50 60	J. W. Keller.
20-22	Delmar.	.....	.....	.....	40	N. Y. C. R. R.	.....	.....	.....	J. W. Keller.
25	Morris.	25	1	.....	1	N. Y. C. R. R.	.....	.....	1 00	J. W. Keller.
25	Morris.	.....	5	.....	2	N. Y. C. R. R.	.....	7 60	.....	J. W. Keller.
26	Morris.	.....	3	.....	1,000	Burning brush.	.....	11 50	.....	J. W. Keller.
May 15	Brown.	.....	250	.....	150	Burning dwelling.	.....	5 36	.....	C. S. Merrick.
June 1-2	Morris.	.....	50	.....	60	.....	.....	19 04	.....	J. W. Keller.
Nov. 18	Deerfield.	.....	.....	.....	.....	.....	.....	9 70	.....	T. C. Harbeson.
	Expenses incurred in investigating fire wardens.	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Expenses incurred in investigating fire wardens.	.....	.....	.....	.....	.....	.....	.....	.....	.....
		105	3,105.5	.....	\$9,455	.....	.....	\$128 04	\$97 10	.....

UNION COUNTY.

Mar 17	Hartley.	.....	5	.....	43	P. R. R.	.....	\$2 05	\$5 00	C. R. Meek.
April 8	Hartley.	.....	80	.....	100	P. R. R.	.....	5 60	5 00	C. R. Meek.
9	Hartley.	.....	100	.....	320	P. R. R.	.....	21 25	16 50	C. R. Meek.
24	Hartley.	.....	40	.....	100	P. R. R.	.....	3 65	15 30	J. C. Ruhl.
May 11	Hartley.	.....	130	.....	1,000	P. R. R.	Fishermen.	60 47	12 00	C. R. Meek.
Oct. 31	White Deer.	.....	150	.....	175	Hunter.	Hunters.	32 05	6 00	R. B. Winter.
Nov. 1	Hartley.	.....	1	.....	10	Hunter.	.....	1 45	1 20	H. R. Meek.
3	Hartley.	.....	20	.....	20	P. R. R.	.....	.....	3 00	C. R. Meek.
8	Hartley.	.....	.....	.....	100	Smoker.	.....	1 15	1 50	C. R. Meek.
Dec. 12-13	Lewis.	.....	1	.....	15	Smoker.	.....	15 15	80	J. C. Snyder.
		387	550	.....	\$1,543	.....	.....	\$143 82	\$66 30	.....

VENANGO COUNTY.

April 21	Sandycreek.	.....	125	.....	\$550	.....	.....	\$14 98	.....	J. Grinder.
Nov. 1	Sandycreek.	.....	100	.....	300	.....	.....	8 52	.....	J. Grinder.
		.....	25	.....	\$850	.....	.....	\$23 50	.....	.....

WARREN COUNTY.

April 18	Cherry Grove.	.....	40	.....	.....	.....	.....	\$13 45	.....	E. M. Farnsworth.
21-22	Triumph.	.....	980	.....	\$1,030	P. R. R.	.....	\$103 75	.....	C. T. Strite.
May 14	Cherry Grove.	.....	75	.....	.....	T. V. R. R.	.....	9 55	.....	E. M. Farnsworth.
		.....	1,035	.....	\$1,030	.....	.....	\$126 75	.....	.....

WAYNE COUNTY.

April 14	Canaan.	.....	40	.....	\$500	.....	.....	\$31 00	.....	F. W. Sherwood, Jr.
18	Austin.	.....	10	.....	150	.....	.....	13 35	.....	J. L. Short.
18-22	Canaan.	.....	100	.....	925	N. Y. & W. R. R.	.....	106 25	.....	F. W. Short.
21-22	Cherry Ridge & Paupack.	.....	300	.....	.....	D. & H. R. R.	.....	46 45	.....	G. W. Collins.
23	Cherry Ridge & Paupack.	.....	.....	.....	.....	.....	.....	36 55	.....	G. W. Collins.
24	Cherry Ridge & Paupack.	.....	200	.....	.....	Incendiary.	.....	104 25	.....	C. A. Daniels.
24-27	Paupack.	.....	1,000	.....	300	.....	.....	46 35	.....	G. W. Collins.
25-26	Cherry Ridge & Paupack.	.....	500	.....	5,000	.....	.....	94 25	.....	F. W. Short.
25-29	Canaan.	.....	20	.....	200	.....	.....	8 75	.....	W. L. Swingle.
26	Lake.	.....	200	.....	100	.....	.....	10 75	.....	C. A. Daniels.
26	Paupack.	.....	200	.....	.....	.....	.....	56 45	.....	G. W. Collins.
26-27	Cherry Ridge & Paupack.	.....	2,570	.....	\$7,175	.....	.....	\$397 45	.....	.....

TABLE I. DETAILED STATEMENT OF FOREST FIRES IN 1915—Continued.
WESTMORELAND COUNTY.

Date.	Township.	Area Burned.		Damage to cut material, buildings, fences, etc.	Total damage.	Cause.		Cost of Extinction.		Fire Warden.
		State forest.	Private land.			Known.	Supposed.	From fire fund.	To individuals.	
April 7-8	Fairfield.	.....	240	\$60	\$50	Clearing.	.....	\$25 30	\$4 95	W. M. Hare.
8	Ligonier.	.....	75	.....	200	P. W. & S. R. R.	.....	4 01	.....	W. H. Lowry.
9	Ligonier.	50	100	15	55	Burning brush.	.....	3 30	.....	W. H. Lowry.
9-10	East Huntingdon.	.....	23	.....	.....	Burning brush.	.....	42 75	1 50	E. C. Myers.
10	Derry.	.....	1,000	.....	130	P. W. & S. R. R.	.....	40 65	4 50	J. C. Dalton.
15	Cook.	20	100	.....	25	P. W. & S. R. R.	.....	28 65	.....	V. M. Bearer.
15	Ligonier.	.....	20	.....	40	Burning brush.	.....	2 95	.....	V. M. Bearer.
15	Cook.	.....	.....	.....	.....	P. R. R.	.....	30 70	57 40	O. J. Dalton.
18	Derry.	.....	1,400	.....	.....	.....	.....	80 80	.....	W. M. Hare.
18-21	Fairfield.	.....	150	.....	75	Burning brush.	Railroad.	10 95	.....	M. H. Lenhart.
19	Donegal.	.....	50	.....	110	Lightning.	.....	3 25	.....	R. N. Johnson.
19	Unity.	.....	40	.....	.....	Burning brush.	.....	10 25	.....	W. M. Hare.
25	Fairfield.	.....	40	.....	500	Burning brush.	.....	9 40	.....	E. C. Myers.
26	Donegal.	.....	25	.....	.....	.....	.....	2 50	.....	W. M. Hare.
26	Fairfield.	.....	40	.....	.....	Burning brush.	.....	2 67	.....	W. H. Lowry.
23	Fairfield.	.....	130	.....	5	Burning brush.	.....	19 00	.....	R. N. Johnson.
May 4	Unity and Cook.	.....	130	.....	575	Burning brush.	.....	15 85	.....	W. M. Hare.
11-12	Unity and Cook.	.....	4	.....	10	Burning brush.	.....	3 98	.....	V. M. Bearer.
14	Fairfield.	.....	35	.....	75	Burning brush.	Hunters.	13 60	.....	V. M. Bearer.
15	Fairfield.	.....	10	.....	.....	Burning brush.	Incendiary.	28 92	30	V. M. Bearer.
Oct. 25	Ligonier.	.....	120	.....	350	P. W. & S. R. R.	Hunters.	10 55	.....	V. M. Bearer.
Nov. 1-2	Ligonier.	.....	350	.....	100	P. W. & S. R. R.	.....	.....	.....	J. Frain.
2-3	Cook.	.....	10	.....	.....	.....	.....	.....	.....	.....
7	Cook.	.....	.....	.....	.....	.....	.....	.....	.....	.....
18	Fairfield.	.....	.....	.....	.....	.....	.....	.....	.....	.....
		70.1	4,058	\$75	\$2,350			\$421 91	\$68 75	

WYOMING COUNTY.

Mar. 18	Noxen.	.....	80	.....	\$50	.....	.....	\$9 85	.....	C. Turner.
April 7-8	Noxen.	.....	400	.....	308	L. V. R. R.	.....	19 45	.....	F. C. Turner.
8	Noxen.	.....	75	.....	.....	L. V. R. R.	.....	22 85	.....	F. C. Turner.
8	Northmoreland.	.....	200	.....	2,000	Railroad.	.....	43 00	.....	H. K. VanTuyl.
21	Noxen.	.....	1,000	.....	100	Burning brush.	.....	151 15	.....	G. W. Schenck.
21	Forkston and Noxen.	.....	.....	.....	.....	.....	.....	25 50	.....	F. C. Turner.
21	Northmoreland.	.....	8	.....	150	Burning brush.	.....	14 30	.....	O. H. K. VanTuyl.
22-23	Monroe and Noxen.	.....	300	.....	600	Hunters.	.....	13 50	.....	S. Jackson.
25	Falls.	.....	25	.....	600	.....	.....	57 75	.....	S. Jackson.
May 11-12	Monroe and Noxen.	.....	300	.....	425	Incendiary.	.....	37 80	.....	J. L. Miller.
14-15	Monroe.	.....	300	.....	.....	Logging engine.	.....	33 15	.....	O. R. Harding.
June 3	Forkston.	.....	900	.....	.....	Logging engine.	.....	56 00	.....	F. C. Turner.
6	Forkston.	.....	80	.....	1,000	.....	.....	10 40	.....	.....
Nov. 8	Noxen.	.....	4,468	.....	\$1,883	.....	.....	\$499 25	.....	.....

*Several hundred.

YORK COUNTY.

Feb. 22	North Codorus.	.....	12	.....	.....	N. C. R. R.	.....	\$4 15	.....	I. W. Feistel.
Mar. 28	Hellam.	.....	75	.....	.....	Lightning.	.....	15 38	.....	F. W. Wiley.
Mar. 30	Peach Bottom.	.....	3	.....	19	Burning brush.	.....	7 75	.....	L. W. Feistel.
April 10	North Codorus.	.....	5	.....	23	N. C. R. R.	.....	3 30	.....	L. W. Feistel.
10	York.	.....	6	.....	25	Burning brush.	.....	4 20	.....	J. W. Brooks.
14	Fawn Grove.	.....	3	.....	20	Burning brush.	.....	2 50	.....	J. E. Wiley.
15	Monaghan.	.....	3	.....	10	Burning brush.	Smoker.	6 14	.....	H. S. Shue.
16	Peach Bottom.	.....	5	.....	110	Burning brush.	.....	2 75	.....	L. W. Feistel.
18	Heidelberg.	.....	3	.....	40	N. C. R. R.	.....	10 75	.....	J. E. Wiley.
19	North Codorus.	.....	25	.....	235	Burning brush.	.....	17 40	.....	J. A. Laird.
20	Peach Bottom.	.....	50	.....	350	Burning brush.	.....	2 30	.....	J. W. Brooks.
20-21	Monaghan & Warrington.	.....	5	.....	100	Burning brush.	.....	.....	.....	.....
21	Fawn Grove.	.....	206	.....	\$1,552	Burning brush.	.....	\$39 55	.....	.....

TABLE II. SUMMARY BY CAUSE, AREA, DAMAGE, AND COST OF EXTINCTION.

County.	Railroads.	Brush burning.	Incendiarv.	Campers.	Lumbering.	Lightning.	Miscellaneous.	Unknown.	Total.	Area.		Total damage.	Cost of Extinction.	
										State forest.	Private land.		From fire fund.	To individuals.
Adams.	1	1	3	2	1	1	1	1	4	1,540	377	\$5,985	\$76 22	\$51 01
Allegheny.	1	1	1	1	1	1	1	1	9	135	377	2,850	82 50	7 50
Armstrong.	7	9	7	9	3	1	1	3	39	135	377	11,049	363 49	183 25
Beaver.	9	2	1	1	1	1	1	1	18	135	377	24,850	497 81	183 25
Berk.	9	2	1	1	1	1	1	1	18	135	377	6,688	317 82	183 25
Berk.	9	2	1	1	1	1	1	1	18	135	377	6,688	317 82	183 25
Blair.	1	1	1	1	1	1	1	1	2	135	377	2,227	64 10	5 75
Bradford.	1	1	1	1	1	1	1	1	2	135	377	650	5 75	1 80
Bucks.	1	1	1	1	1	1	1	1	17	135	377	2,313	351 82	1 80
Butler.	4	3	3	3	3	3	3	3	21	1,410	377	6,265	327 87	41 95
Cambria.	2	2	13	4	1	1	1	16	38	1,410	377	42,007	628 02	206 55
Cameron.	17	1	1	4	1	1	1	21	85	2,408	377	52,527	2,238 90	206 55
Carbon.	24	8	10	12	3	1	6	2	2	2,408	377	52,527	2,238 90	206 55
Centre.	1	1	1	1	1	1	1	1	9	25	774	14,682	279 90	9 10
Chester.	1	1	1	1	1	1	1	1	9	25	774	14,682	279 90	9 10
Clarion.	1	1	1	1	1	1	1	1	9	25	774	14,682	279 90	9 10
Clearfield.	10	4	3	14	2	2	1	22	57	13,275	377	93,047	2,247 62	509 52
Clinton.	17	3	11	11	1	1	1	16	59	13,275	377	93,047	2,247 62	509 52
Columbia.	1	2	2	2	1	1	2	2	8	13,275	377	12,855	248 55	14 00
Crawford.	2	3	5	2	2	1	3	8	23	5,550	377	117,575	811 46	116 05
Cumberland.	36	3	1	8	2	1	1	9	57	2,000	11,516	25,045	1,127 28	109 05
Dauphin.	5	1	2	1	1	1	1	5	14	135	4,088	6,065	872 46	14 00
Delaware.	1	1	1	1	1	1	1	1	17	135	4,088	6,065	872 46	14 00
Elk.	1	1	1	1	1	1	1	1	17	135	4,088	6,065	872 46	14 00
Erie.	1	1	1	1	1	1	1	1	17	135	4,088	6,065	872 46	14 00
Franklin.	1	1	1	1	1	1	1	1	17	135	4,088	6,065	872 46	14 00
Greene.	1	1	1	1	1	1	1	1	17	135	4,088	6,065	872 46	14 00
Huntingdon.	4	5	3	9	2	1	1	10	35	17	10,750	36,088	812 15	10 35
Indiana.	1	1	1	1	1	1	1	1	19	135	4,088	6,065	872 46	14 00
Jefferson.	1	1	1	1	1	1	1	1	19	135	4,088	6,065	872 46	14 00
Juniata.	1	1	1	1	1	1	1	1	19	135	4,088	6,065	872 46	14 00
Lackawanna.	3	1	2	1	1	1	1	10	16	135	4,088	6,065	872 46	14 00
Lancaster.	1	1	1	1	1	1	1	2	6	135	4,088	6,065	872 46	14 00

Lawrence.	3	1	1	1	1	1	1	1	2	10	207	8,319	13 05	226 75
Lebanon.	4	2	1	1	1	1	1	1	3	6,559	35,567	535 45		
Lehigh.	10	1	3	1	1	1	1	1	36	5,853	16,327	535 47		
Luzerne.	9	3	3	1	1	1	1	1	12	7,437	6,906	1,006 10		
Lycoming.	5	1	1	1	1	1	1	1	5	6,303	50	1,104 13		689 90
McKean.	3	1	1	1	1	1	1	1	9	20		14 75		7 50
Mercer.	3	2	1	1	1	1	1	1	137	3,968	8,538	988 85		285 70
Mifflin.	16	4	1	1	1	1	1	1	10	12,565	18,171	1,283 10		5 56
Monroe.	1	1	1	1	1	1	1	1	40					
Montgomery.	1	1	1	1	1	1	1	1	12	1	210	9 70		
Montour.	1	1	1	1	1	1	1	1	8	1,093	2,735	180 23		
Northampton.	2	1	1	1	1	1	1	1	5	4,618	12,265	244 20		
Northumberland.	3	3	3	3	3	3	3	3	17	2,724	6,461	951 40		3 20
Perry.	3	3	3	3	3	3	3	3	29					
Philadelphia.	1	5	3	3	3	3	3	3	18	15,894	30,033	923 86		117 85
Pike.	1	9	3	3	3	3	3	3	28	4,480	15,058	524 25		58 80
Potter.	15	2	2	2	2	2	2	2	11	3,365	131,223	992 25		
Schuylkill.	7	1	1	1	1	1	1	1	27	14,379	10,987	751 10		
Snyder.	7	2	1	1	1	1	1	1	5	1,080	1,825	16 25		
Somerset.	4	1	1	1	1	1	1	1	4	2,855	2,408	69 90		10 30
Sullivan.	1	1	1	1	1	1	1	1	20	301	3,170	44 65		900 00
Susquehanna.	1	1	1	1	1	1	1	1	8	530	9,455	7 35		7 35
Tioga.	0	1	1	1	1	1	1	1	2	3,105	9,455	128 04		97 10
Union.	5	1	1	1	1	1	1	1	15	3,550	1,843	143 82		66 30
Venango.	3	1	1	1	1	1	1	1	11	225	28 50	23 50		
Warren.	3	1	1	1	1	1	1	1	2	1,030	1,030	126 75		
Washington.	3	1	1	1	1	1	1	1	3					
Wayne.	1	1	1	1	1	1	1	1	9	2,570	7,175	597 45		68 75
Westmoreland.	5	1	1	1	1	1	1	1	12	4,068	3,350	421 91		
Wyoming.	3	1	1	1	1	1	1	1	25	4,468	4,923	499 25		
York.	3	1	1	1	1	1	1	1	8	4,206	1,582	89 55		
Total.	274	105	150	136	19	37	353	1,001	294,672	41,963	\$850,777	\$28,078 16		\$4,004 75

TABLE III. SUMMARY BY MONTHS.

County.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Adams,				4									4
Allegheny,			2	6	1								9
Armstrong,													
Beaver,				23						1	9		39
Bedford,			8	6	2					1		1	18
Berks,				11	3					1	3		18
Blair,				6		1							7
Bradford,			2										2
Bucks,													
Butler,				12	3	1					1		17
Cambria,				18	1					1			21
Cameron,		1		1	3	1				1			38
Carbon,		1	7	25	3					2	3		85
Centre,			2	69	8							1	2
Chester,				1	1								9
Clarion,				5	4								57
Clearfield,				45	12								59
Clinton,			5	44	4					2	4		8
Columbia,			2	6									
Crawford,													
Cumberland,			1	19							3		23
Dauphin,			11	35	3	1				1	6		57
Delaware,													
Elk,				12	1	1							14
Erie,													
Fayette,			1	11	1					1	3		17
Forest,				1									
Franklin,			10	28	1					1	22	3	65
Fulton,				6	1						1		8
Greene,													
Huntingdon,			1	21	2					3	8		35
Indiana,					1								1
Jefferson,			3	14	2								19
Juniata,				4							1	1	6
Lackawanna,			1	12	1					1	1		16
Lancaster,				4									6
Lawrence,											2		2
Lebanon,			2	7									9
Lehigh,				10	1						1		12
Luzerne,			5	28	5	2				3	11		54
Lycoming,			1	27	1					2	4	1	36
McKean,				3	2								5
Mercer,													
Mifflin,			1	13	1						2		17
Monroe,			3	30	4					1	2		40
Montgomery,													
Montour,				1									1
Northampton,			1	2	4						1		8
Northumberland,				7						1	1		9
Perry,			2	17	1					3	5	1	29
Philadelphia,													
Pike,			3	19	6	1				1	1		31
Potter,				21	2	4				1			28
Schuylkill,			3	16	1		1			2	4		27
Snyder,				4							1		5
Somerset,				7	5					2	6		20
Sullivan,				4		3					1		8
Susquehanna,				3	1								4
Tioga,				12	1	1					1		15
Union,			1	4	1					1	3	1	11
Venango,				1							1		2
Warren,				2	1								3
Washington,													
Wayne,				12									12
Westmoreland,				15	4					1	5		25
Wyoming,				1	8	2	2				1		14
York,			1	2	10								13
Total,		3	84	739	94	18	1			34	119	9	1,101

TABLE IV. CLASSIFICATION OF FIRES BY ACREAGE.

[illegible]

TABLE IV. CLASSIFICATION BY ACREAGE—Continued.

County.	Less than 1 acre.		1 to 100 acres.		100 to 1,000 acres.		More than 1,000 acres.		Total.	
	Number.	Acres.	Number.	Acres.	Number.	Acres.	Number.	Acres.	Number.	Acres.
Lehigh, .....	.....	.....	5	58	5	1,995	2	3,800	12	5,853
Luzerne, .....	.....	.....	39	1,142	14	5,095	1	1,200	54	7,437
Lycoming,	3	4	15	517	16	3,980	2	4,540	36	9,007.4
McKean, .....	.....	.....	5	20	.....	.....	.....	.....	5	20
Mercer, .....	.....	.....	7	255	10	3,880	.....	.....	17	4,105
Mifflin,	11	4.3	21	550	4	1,350	4	10,600	40	12,504.3
Monroe, .....	.....	.....	1	12	.....	.....	.....	.....	1	12
Montgomery, .....	.....	.....	1	95	.....	983	.....	.....	8	1,093
Montour, .....	.....	.....	3	318	3	1,800	1	2,600	9	4,618
Northampton, .....	.....	.....	5	793	5	1,580	2	2,500	29	4,873
Northumberland, .....	.....	.....	22	.....	.....	.....	.....	.....	.....	.....
Perry, .....	.....	.....	.....	398	12	5,950	7	16,700	31	23,043
Philadelphia, .....	.....	.....	17	524	10	2,320	1	2,000	23	4,844
Pike, .....	.....	.....	17	664	4	1,500	4	12,215	27	14,379
Potter, .....	.....	.....	19	.....	3	1,005	1	2,900	5	3,905.2
Schuylkill,	1	2	.....	307	6	977	1	1,200	20	2,484.1
Snyder,	3	1	10	300	.....	.....	1	7	8	301
Somerset,	1	1	6	.....	.....	450	.....	.....	4	530
Sullivan, .....	.....	.....	3	80	1	250	1	2,720	15	3,210.5
Susquehanna, .....	.....	.....	11	239	3	730	1	.....	11	937
Tioga,	1	1.5	7	206	1	125	.....	.....	2	225
Union, .....	.....	.....	1	100	1	980	.....	.....	3	1,085
Venango, .....	.....	.....	2	115	.....	.....	.....	.....	.....	.....
Warren, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Washington, .....	.....	.....	4	170	8	2,400	.....	.....	12	2,570
Wayne,	3	1.1	13	357	8	2,250	1	1,490	25	4,198.1
Westmoreland, .....	.....	.....	5	268	9	4,200	.....	.....	14	4,468
Wyoming,	1	.5	12	206	.....	.....	.....	.....	13	206.5
York, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total,	61	31	639	20,637	323	115,116	78	200,851	1,101	336,636

ROSTER OF FOREST FIRE WARDENS.

The list of forest fire wardens printed herewith is in accordance with the information at hand at the time the last proof was sent to the printer. Those wardens who have received certificates of appointment under the act of 1915 are indicated by the number in the first column. Those who have no number are still subject to the act of 1909. If a warden does not have a telephone in his residence or office, but can be reached through another party's 'phone, the latter is given.

Among those who have not as yet come under the new law, there may be some names which should not be listed. A number of the old wardens have not returned our Form 2, but we have not dropped them.

The Chief Forest Fire Warden will be glad to have his attention called to any errors in this list. He will also be very glad to have his attention called to any inefficiency or discourtesy on the part of any of the wardens.

ROSTER OF FOREST FIRE WARDENS OF PENNSYLVANIA.
ADAMS COUNTY.

Township, Name, Number.	Address.	Call.	Exchange.	Company.	Reports to.
Franklin:					
80 James E. Carbaugh (R),	Orrtanna No. 2,	R. G. Conklin,	Fayetteville,	C. V.,	R. G. Conklin.
92 B. F. Hassler (R),	Fayetteville No. 2,	R. G. Conklin,	Fayetteville,	C. V.,	R. G. Conklin.
414 J. Edward Hall,	Orrtanna No. 2,	Henry Kimple,	.....	.....	R. G. Conklin.
Hamiltonban:					
134 Harry Staley (R),	Fayetteville No. 2,	L. E. Staley,	Fayetteville,	C. V.,	L. E. Staley.
433 Edward Strausbaugh,	Orrtanna,	633-E,	Gettysburg,	C. V.,	L. E. Staley.
Menallen:					
639 Ira P. Taylor	Biglerville,	Ira P. Taylor,	Biglerville,	United,	J. E. Williams.
110 James W. McElwee (R),	Orrtanna No. 2,	R. G. Conklin,	Fayetteville,	C. V.,	R. G. Conklin.
842 Peter Baum,	Biglerville No. 2,	33-U,	Biglerville,	United,	J. E. Williams.
Calvin M. Black,	Aspers No. 2,	W. A. Black,	Biglerville,	Bell,	J. E. Williams.
Wm. J. Stover,	Biglerville No. 1, .....	.....	.....	.....	J. E. Williams.

ALLEGHENY COUNTY.

ALLEGEDLY		Unity Station No. 1.				
Plum:	E. K. Stough,	1430 Oliver				Harrisburg.
Scott:	B. F. Davis,	Pittsburgh.				Harrisburg.

ARMSTRONG COUNTY.

ARMSTRONG COUNTY.					
Apollo, Borough:	Apollo,				Harrisburg.
Dr. I. C. Hunter,					
Applevood Borough:	Kittanning,				Harrisburg.
A. H. Semmens,					
Atwood Borough:	Atwood,				Harrisburg.
J. D. McLean,					

Bethel:	Kelly's Station,			Harrisburg.
Edw. R. Wolfe,	New Bethlehem,			Harrisburg.
Boggs:	Cochran Mills,	190-R-5,	Kittanning,	Harrisburg.
Guyer Kuhns,		20-5,	Leechburg,	Harrisburg.
Burrell:	Dayton,			Harrisburg.
J. E. Kinnard,	Kittanning No. 3,			Harrisburg.
Dayton Borough:	Kittanning No. 3,			Harrisburg.
Wm. Gallagher,	Adrian,			Harrisburg.
East Franklin:	Ford City,	84-J,	Kittanning,	Harrisburg.
John McClay,	Freeport,			Harrisburg.
John H. Bolz,	Leechburg,			Harrisburg.
Geo. H. Richey,	Armatta,			Harrisburg.
C. M. Richey,	Apollo No. 4,	15-R-22,	Apollo,	Harrisburg.
Ford City Borough:	Tidal,	6-1,	Tidal,	Harrisburg.
J. R. McClelland,	Rimer,	G. W. Clouse & Co.,	Tidal,	Harrisburg.
Freeport Borough:		Rimerton.		Harrisburg.
James O. Raiston, Jr.,	Kelly Station,			Harrisburg.
Gilpin:	New Bethlehem No. 4,		Rural Line,	Harrisburg.
W. Lindsey Patterson,	Kittanning No. 5,			Harrisburg.
Johnetta Borough:	Dime,			Harrisburg.
C. S. Helmick,	West Monterey,			Harrisburg.
Kiskiminetas:	Templeton,			Harrisburg.
N. Ralph Fitzgerald,	Yatesboro No. 1,			Harrisburg.
Madison:	Kittanning,			Harrisburg.
W. E. Paine,	Rural Valley,			Harrisburg.
Frank Lorenz,	New Bethlehem,			Harrisburg.
Manor:	Freeport,			Harrisburg.
John M. Huston,	Freeport,			Harrisburg.
Mahoning:	Worthington No. 1,			Harrisburg.
Robert C. Orr,				Harrisburg.
North Buffalo:				Harrisburg.
North Wallace Claypool,				Harrisburg.
Farks:				Harrisburg.
John E. Lelless,				Harrisburg.
Perry:				Harrisburg.
Hiram J. Sedwick,				Harrisburg.
Pine:				Harrisburg.
O. B. Summers,				Harrisburg.
Plum Creek:				Harrisburg.
John Hotham,				Harrisburg.
Rayburn:				Harrisburg.
Charles A. Adams,				Harrisburg.
Rural Valley Borough:				Harrisburg.
J. C. Moore,				Harrisburg.
South Bethlehem Borough:				Harrisburg.
W. W. Corbett,				Harrisburg.
South Buffalo:				Harrisburg.
Harry Ralston,				Harrisburg.
H. H. Irwin,				Harrisburg.
Sugarcreek:				Harrisburg.
Samuel Shearer,				Harrisburg.

ROSTER OF FOREST FIRE WARDENS OF PENNSYLVANIA—Continued.

ARMSTRONG COUNTY—Continued.

Township, Number, Name.	Address.	Telephone Through Which Warden Can Be Reached.			Reports to.
		Call.	Exchange.	Company.	
Valley: J. F. Rosenberger,	Kittanning No. 2, ..	J. A. Olinger,	Kittanning, .....	.....	Harrisburg.
Washington: M. L. Painter,	Adrian, .....	.....	.....	.....	Harrisburg.
Wayne: G. A. Stear,	Dayton,	G. A. Stear,	Rural Valley or Punxsutawney.	Bell,	Harrisburg.
West Kittanning Borough: W. G. Sedwick,	Kittanning,	513,	Kittanning,	Local,	Harrisburg.
Wickboro Borough: L. H. Shaffer,	Kittanning,				Harrisburg.

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BEDFORD COUNTY.

Bedford: 312 F. M. Agnew,	Wolfsburg,	F. M. Agnew,	Bedford,	Bell,	Wm. L. Byers.
311 James A. Heming,	Bedford No. 3,	Mrs. J. N. Drenning,	Cumberland Valley, ..	Bell,	Wm. L. Byers.
Bloomfield: 310 Charles Snyder,	Bakers Summit,	A. Z. Pote,	Bakers Summit, .....	.....	Wm. L. Byers.
Broad Top: 309 James L. Tenley, Sr.,	Defiance,	J. L. Tenley,	Several,	Bedford and Fulton, ..	Wm. L. Byers.
308 George Y. Foot,	Six Mile Run,	J. M. McIntyre & Co., ..	.....	Both Phones,	Wm. L. Byers.
758 Samuel Ford,	Hopewell,	Penna Trading Co., .....	.....	Bedford and Fulton, ..	Wm. L. Byers.
Colerain: 11 Wm. L. Byers (F),	Rainsburg,	Wm. L. Byers,	Bedford,	Friends Grove,	Harrisburg.
133 Edward H. Smith (R), ..	Hopewell,	Diehl's Store,	Bedford, .....	.....	Wm. L. Byers.
Cumberland Valley: 466 Norman Bowman,	Cumberland Valley, ..	Jacob Nave,	Cumberland Valley, ..	.....	Wm. L. Byers.
799 Clarence Anderson,	Md.	O. P. Bruner, .....	.....	C. V.,	Wm. L. Byers.
East Providence: 335 Charles R. Drenning, ..	Bedford No. 3,	1-R-22,	Bedford,	Bell,	Wm. L. Byers.
307 Sylvester Ritchey,	Everett No. 5,	5-R-14,	Breezewood,	McConnellsburg and Breezewood,	Wm. L. Byers.
306 E. M. Simpson,	Everett No. 4,	E. M. Simpson,	Breezewood,	Bell,	Wm. L. Byers.
East Saint Clair: 305 D. W. Stambaugh,	St. Clairsville,	J. S. Hoover,	St. Clairsville,	Both Phones,	Wm. L. Byers.
304 J. S. Hoover,	Fishertown,			Bedford,	Wm. L. Byers.

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Harrison: 303 W. A. Carpenter,	Manns Choice No. 1, ..				Wm. L. Byers.
337 Howard Carpenter,	Manns Choice,	R. A. Long,	Manns Choice,		Wm. L. Byers.
302 R. A. Long,	Buffalo Mills,	O. G. Miller,	Bedford,	Bedford,	Wm. L. Byers.
571 Oscar G. Miller,	Buffalo Mills No. 1, ..	.....	Bedford,	Bell,	Wm. L. Byers.
Hopewell: 351 Edgar R. Smith,	Hopewell,	E. R. Smith,	Loysburg,	Morrisons Cove,	Wm. L. Byers.
Junata: 339 Harvey E. Sides,	Manns Choice No. 1, ..	H. K. McKinney,	Schellsburg,	Somerset,	Wm. L. Byers.
570 H. K. McKinney,	Schellsburg, .....	.....	.....	.....	Wm. L. Byers.
Kimmel: 587 J. A. Finnegan,	Imier No. 1,	J. A. Finnegan, .....	.....	Bell,	Wm. L. Byers.
King: 301 A. R. Iokes,	Osterburg,	E. H. Hartle, .....	.....	Bedford,	Wm. L. Byers.
324 Lloyd Fickes,	Imier,	V. A. Stuft,	Imier,	Bell,	Wm. L. Byers.
Liberty: 338 D. F. Workman,	Saxton,	Saxton Furnace, .....	.....	Both Phones,	Wm. L. Byers.
Lincoln: 300 A. H. Ling,	Alum Bank,	A. H. Ling,	Fishertown,	Bedford,	Wm. L. Byers.
299 John W. Rouzer,	Alum Bank,	J. W. Rouzer,	Imier,	Pavia and Imier, ..	Wm. L. Byers.
Loudonderry: 638 Ray Mays,	Buffalo Mills No. 1, ..	Central,	Hyndman,	Bell,	Wm. L. Byers.
Mann: Frank Cavendar,	Artemus,	Wm. Elbins,	Everett,	Bell,	Wm. L. Byers.
Mourae: 236 Erastus Diehl,	Chaneyville,	Marvin Pennel,	Clearville,	Bell,	Wm. L. Byers.
347 Joseph Barkman,	Everett No. 4,	Jos. Barkman,	Everett and Clear- ville,	Chapmans Run,	Wm. L. Byers.
Napier: 300 William M. Sleek,	Schellsburg,	G. R. 2,	Fishertown,	Bell,	Wm. L. Byers.
569 L. J. Miller,	Schellsburg No. 1, ..	L. J. Miller, .....	.....	Farmers Mutual,	Wm. L. Byers.
Snake Spring: 294 Dorsey M. Miller,	Everett No. 1,	D. M. Miller, .....	.....	Bedford,	Wm. L. Byers.
293 Roy Miller,	Everett No. 4,	59,	Everett,	Bedford,	Wm. L. Byers.
822 Harvey Richey,	Everett No. 1,	D. H. Shuss,	Everett,	Bedford and Fulton, ..	Wm. L. Byers.
Southampton: 292 Benjamin W. James, ..	Flintstone No. 1, Md.	B. W. James,	Clearville,	Bell,	Wm. L. Byers.
South Woodbury: 413 George A. Mauk,	New Enterprise,	G. A. Mauk,	Loysburg,	Morrisons Cove,	Wm. L. Byers.
Union: 380 Simon A. Feather,	Pavia,	Central,	Pavia,	Both Phones,	Wm. L. Byers.
231 J. H. Dilbert,	Pavia,	Dilbert's Store, .....	.....	Both Phones,	Wm. L. Byers.
West Providence: 290 R. W. Weicht,	Everett,	R. W. Weicht,	Everett,	Both Phones,	Wm. L. Byers.
West St. Clair: 289 Morgan Prosser,	Alum Bank, .....	.....	.....	.....	Wm. L. Byers.
Woodbury: 238 B. R. Brumbaugh,	Martinsburg No. 1, ..	Cyrus H. Sell, .....	.....	Morrisons Cove,	Wm. L. Byers.

ROSTER OF FOREST FIRE WARDENS OF PENNSYLVANIA—Continued.
BERKS COUNTY.

Township, Number, Name.	Address.	Telephone Through Which Warden Can Be Reached.			Reports to.
		Call.	Exchange.	Company.	
35 James E. McNeal (F), Albany: 401 Monroe W. Snyder,	616 Washington St., Reading.	2499,	Reading,	Bell,	Harrisburg.
Amity: 768 Paul R. Guidin,	Kempton, Yellow House,	Kempton House, 10-2, 114-1,	Kempton or Krums- ville. Yellow House, Birdsboro,	Both Phones, Bell, Conestoga,	J. E. McNeal. J. E. McNeal.
Bechtelsville: Wm. T. Ehst,	Bechtelsville,				J. E. McNeal.
Bethel: 408 Jacob R. Meck, 409 George Ebling,	Meckville, Bethel,	38-R-11, Frank Ebling,	Myerstown, Frystown,	Bell, Bethel-Mt. Aetna,	J. E. McNeal. J. E. McNeal.
Birdsboro Borough: B. Frank Knabb,	Birdsboro,				J. E. McNeal.
Centre: Henry E. F. Dietzle,	Centreport,				J. E. McNeal.
Cunru: 743 Wm. G. Kohout,	Reading No. 1,	3014-R-14,	Shillington,	Bell,	J. E. McNeal.
District: 407 Peter K. Sterner,	Alburtis No. 2,	Fredericksville, Hotel or Store,	Topton,	Mountain,	J. E. McNeal.
Douglas: 642 Chas. L. Schultz,	Boyetown No. 2,	54,	Yellow House,	Bell,	J. E. McNeal.
Earl: 715 Wm. B. Wisler,	Pine Forge,	20-21,	Yellow House,	Bell,	J. E. McNeal.
Exeter: 846 Oliver M. Mest,	Boyetown No. 1,	H. A. Mest,	Yellow House,	Manatawny,	J. E. McNeal.
Exeter: 742 Victor L. Goodhart,	Stonersville,	V. L. Goodhart,	Reading and Birds- boro.	Bell and Conestoga,	J. E. McNeal.
Greenwich: 639 Jonas Altenderf,	Klinesville,	19-6,	Krumsville,	Conestoga,	J. E. McNeal.
Heidelberg: 706 Albert F. Held,	Lenhartsville,	932-R-4,	Hamburg,	Bell,	J. E. McNeal.
Hereford: Allison R. Spetcher,	Wernersville,				J. E. McNeal.
Hereford: 744 James E. Fox,	Macungie No. 2,	511,	Bally,		J. E. McNeal.
Jefferson: 745 Adam L. Mensch,	Macungie No. 2,	64-5 or 64-3,			J. E. McNeal.
Jefferson: Alfred G. Clemmer,	Clayton,				J. E. McNeal.
Adam H. Miller,	Host,				J. E. McNeal.

Kutztown Borough: Isaac L. DeTurk,	Kutztown,				J. E. McNeal.
Lower Alsace: Wm. J. Shearer,	Stony Creek Mills,				J. E. McNeal.
Maidenreick: 406 O. B. Roberts,	Blandon,				J. E. McNeal.
Marion: 796 Wm. A. Brumbach,	Stouchsburg,	Snaltz & Co.,		Consolidated,	J. E. McNeal.
Maxatawny: 702 Solon L. Parkes,	Lyon Station,	Dr. M. H. Koch,	Topton,	Bell,	J. E. McNeal.
Mount Penn Borough: Alvin Weisner,	Bowers,				J. E. McNeal.
Muhlenberg: Frank D. Yoder,	Mount Penn,				J. E. McNeal.
Oley: 406 Nicholas H. Fisher,	Temple,	F. M. Adam,	Temple,	Bell,	J. E. McNeal.
Ontelaunee: 710 John S. Rothermel,	Oley,	1111,	Yellow House,	Bell,	J. E. McNeal.
Penn: 703 Henry H. Hollenbach,	Leesport No. 1,	833,	Reading,	Consolidated,	J. E. McNeal.
Pike: Harvey H. Weller,	Bernville,	32,	Bernville,	Bethel-Mt. Aetna,	J. E. McNeal.
Reading City: 845 George R. Logan,	Mill Church,				J. E. McNeal.
Richmond: 404 Milton D. Sollenberger,	Reading,	1410,	Reading,	Bell,	J. E. McNeal.
Robeson: 413 Lott D. Evans,	Virginville,	H. D. Schaeffer,	Reading,	Bell,	J. E. McNeal.
Rockland: 788 Jacob Ruppert,	Lyon Station,				J. E. McNeal.
Ruscombmanor: 704 Nic. K. Noll,	Fleetwood No. 1,	D. H. Manviller,	Fleetwood,	Consolidated,	J. E. McNeal.
Sinking Spring Borough: Thos. M. Breidegum,	Fleetwood No. 2,				J. E. McNeal.
Tilden: 793 Daniel H. Bailey,	Sinking Spring,	22-L,	Sinking Spring,	Bell,	J. E. McNeal.
Tulpehocken: 767 Charles L. Moyer,	Hamburg No. 1,	W. G. Ebling,	Hamburg,	Bell,	J. E. McNeal.
Union: 711 Harry Church,	Mt. Aetna,	27-S,	Frystown,	Bethel-Mt. Aetna,	J. E. McNeal.
Upper Tulpehocken: 402 Samuel A. Berger,	Monocacy,	103-3,	Birdsboro,	Conestoga,	J. E. McNeal.
Upper Tulpehocken: 843 A. J. Haag,	Shartlesville,	S. A. Berger,	Bernville,	Bethel-Mt. Aetna,	J. E. McNeal.
Upper Tulpehocken: 729 Harry J. Paul,	Shartlesville,	8-2-F,	Hamburg and Bern- ville.	Bell and Consolidated,	J. E. McNeal.
	Strausstown,	Farmers and Drivers Hotel.		Both Phones,	J. E. McNeal.

ROSTER OF FOREST FIRE WARDENS OF PENNSYLVANIA—Continued.

BERKS COUNTY—Continued.

Township, Number, Name.	Address.	Telephone Through Which Warden Can Be Reached.			Reports to.
		Call.	Exchange.	Company.	
Washington: Henry M. Bauer, West Reading Borough: Daniel K. Hoch,	Barto, 119 Walnut St., Read- ing.				J. E. McNeal. J. E. McNeal.
Windor: 732 Adam S. Martin, Womelsdorf Borough: 741 John Y. Fetticofer,	Hamburg, Womelsdorf.	Sanatorium, 50.	Hamburg or Windsor. Womelsdorf.	Bel.	J. E. McNeal. J. E. McNeal.

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BLAIR COUNTY.

Antis: 641 W. A. Keller, John T. McClellan, Bellwood Borough: O. S. Fleming, Catharine: Wm. F. Hyle, Charles W. Harpster, Melvin Salvety, G. W. Aurandt, Duncansville Borough: Geo. W. Myers, Frankstown: 646 Dr. J. A. Gold, Huston: David M. Fouse, Logan: 643 Findley Anderson, 848 H. E. Chamberlin, 866 J. H. Winters, 872 R. L. Goetz, 645 C. F. Yost,	Tyrone No. 2, Tyrone No. 2, Bellwood, Williamsburg No. 1, Issett, Williamsburg, R. D., Duncansville, Frankstown, Drab, 666 First Ave., Al- toona, Eldorado, Altoona, Altoona, Altoona No. 1,	W. A. Keller, 32-24 W. C. W. Harpster, J. H. Rodkey, D. M. Fouse, Brush Mt., Shew & Co., 50, 249X, 956-R-3,	Bellwood, Williamsburg, Morrison Cove, Holidaysburg, Morrison Cove, Motive Power, Altoona, Altoona, Altoona,	United, United, United, Bell and Phoenix, Morrison Cove, Bell Motive Power, Bell, Bell, Bell, Bell,	Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg.
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North Woodbury: 680 Arch Brumbaugh, 681 M. H. Kensinger, 649 Earl N. Bowser, Snyder: J. B. Beam, Taylor: 680 C. E. Albright, Tyrone Borough: A. Lee Fleck, Williamsburg Borough: Coleman Crotley,	Martinsburg No. 1, Martinsburg, Henrietta, Tyrone, Roaring Springs, Tyrone No. 1, Williamsburg, Box 2,	40-10-M, 40-3M, Geo. Baker, Ice Plant at Barnett, 901-R-5,	Martinsburg, Martinsburg, Martinsburg, Tyrone, 	United, United, Morrison Cove, Bell, 	Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg.
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BRADFORD COUNTY.

Albany: 885 A. H. Benjamin, Armenia: 886 T. A. Chapman, Asylum: 966 J. G. Kerrick, Barelay: 887 John Kline, Canton: 888 Ulysses Bird, Columbia: 889 Olen Bixby, Franklin: 890 C. R. Montgomery, Monroe: 891 Geo. E. Morris, Terry: 892 J. L. Larrabee, Wyalusing: 905 L. M. Elliott, 895 W. E. Whispell,	New Albany, Canton, Towanda No. 7, Laquin, Canton, Sylvania, Canton, Monroeton No. 1, New Albany No. 45, Wyalusing No. 2, Wyalusing No. 1,	A. H. Benjamin, 72J, J. G. Kerrick, John Kline, 69-Y-X, Olen Bixby, 15 A. T. Morse, Elk Tannery Co., W. B. Bates, L. M. Elliott, J. N. Derby,	New Albany, Armenia and Canton Towanda and Stand- ing Stone, Leroy, Canton, Sylvania, West Franklin, Powell, Wyalusing, Camptown, Wyalusing,	New Albany, Independent, Bell, Leroy and Canton, Farmers, Fairview Bell, Both Phones, Bell, Campton & Herrick, Independent,	T. C. Harbeson. Lloyd, Pa. T. C. Harbeson. T. C. Harbeson. T. C. Harbeson. T. C. Harbeson. T. C. Harbeson. T. C. Harbeson. T. C. Harbeson. T. C. Harbeson. T. C. Harbeson. T. C. Harbeson.
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BUCKS COUNTY.

Buckingham: John Ewers, East Rockhill: Jacob M. Detweiler,	Buckingham, Perkasie,	45-R-3, 27-R-11,	Doylestown, Sellersville,	Bel. Bel.	Harrisburg. Harrisburg.
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BUTLER COUNTY.

Jackson: B. Stiner,	Harmony,	Harrisburg.
Middlesex:	Valencia No. 23,	Harrisburg.
Penn: Samuel A. Leslie,	Butler No. 8,	Harrisburg.
Penn: Robert H. Harbison,	Herman,	Harrisburg.
Summit:	John Biedenback,	Harrisburg.
Venango:	Eau Claire,	Harrisburg.
Amos Seaton,	37,	Peoples,

CAMBRIA COUNTY.

Adams: 828 A. C. Baumgardner, 678 Samuel E. Jamison,	Johnstown,	Chamber of Commerce J. E. Sauter, Henretta Supply or Coal Co. office.	Johnstown,	Harrisburg. W. D. Ludwig. W. D. Ludwig.
Allegheny: 891 Edward Leuz, Asheville Borough: Silas Gibbons,	Loretto,	Edw. Lentz,	Loretto,	W. D. Ludwig.
Bart: 674 John Anderson, Sr.,	Ashville,	John Anderson,	Farmers Line,	W. D. Ludwig.
Blacklick: 728 E. B. Gotshall,	Marsteller,	Demonic Rubbo, 47- R-21.	Bell,	W. D. Ludwig.
Carroll: 677 Philip Hartzog, A. H. Shambaugh,	Expedite,	P. Herzog,	H. & C.,	W. D. Ludwig. W. D. Ludwig.
Cambria: 727 Benjamin Evans,	Carrolltown,	15-M.	Bell,	W. D. Ludwig.
Chest: 665 C. F. Gill,	Carrolltown,	Philip Gill,	United,	W. D. Ludwig.
662 Paul Smithbower,	Ebensburg,	10-C.	N. Cambria Farmers,	W. D. Ludwig.
681 John Kline,	Flinton R. D.,	Patton No. 1,	St. Lawrence Rural,	W. D. Ludwig.
737 Michael Kibler,	St. Lawrence,	John Kline,	St. Lawrence Rural,	W. D. Ludwig.
826 John Cosgrove,	Michael Kibler,	John Kline,	St. Lawrence,	W. D. Ludwig.
James A. McCans,	Patton R. D.,	John Cosgrove,	Farmers Line,	W. D. Ludwig.
Jacob Warner,	Patton,	100.	St. Lawrence Rural,	W. D. Ludwig.
Clearfield: 653 J. C. McGough,	St. Lawrence,	Jacob Warner,	Farmers Line,	W. D. Ludwig.
Frank Warton,	Dysart,	F. J. Nagle, .....	.....	W. D. Ludwig.
Cresson: 827 Conrad Vincent Freidhof,	Ashville,	R. G. Lutton,	Summit,	W. D. Ludwig.
Croyle: 657 Michael F. McCall,	Summit,	Ambrose McCall,	Johnstown,	W. D. Ludwig.
714 Charles S. Stutzman,	Summerhill,	83-R-11,	Bell,	W. D. Ludwig.
	Mineral Point No. 1,			

ROSTER OF FOREST FIRE WARDENS OF PENNSYLVANIA—Continued.
CAMBRIA COUNTY—Continued.

Township, Name, Number.	Address.	Telephone Through Which Warden Can Be Reached.			Reports to.
		Call.	Exchange.	Company.	
East Taylor: 654 Geo. C. Varner,	Cocomaugh No. 1, ..	681-11,	Johnstown,	Bell,	W. D. Ludwig.
Elder: Lewis Blankenbaker,	Hastings, .....	.....	.....	.....	W. D. Ludwig.
Ferndale Borough: R. W. Stagle,	Johnstown No. 4, ..	.....	.....	.....	W. D. Ludwig.
Franklin Borough: J. R. States,	Cocomaugh, .....	.....	.....	.....	W. D. Ludwig.
Gallitzin: 825 W. T. Reiley,	Coupon,	T. H. Myers,	Ashville,	Bell,	W. D. Ludwig.
Jackson: 802 Grant S. Fresh,	Cocomaugh No. 1, ..	Wm. Michaels,	Johnstown, .....	.....	W. D. Ludwig.
Johnstown City: 822 R. Y. Weller,	133 F St., Johnstown, ..	Brown & Leckey, ..	.....	Johnstown, ..	W. D. Ludwig.
Lower Yoder: 656 A. S. Evans,	Johnstown,	Frank Bowden,	Johnstown, ..	Bell,	W. D. Ludwig.
Middle Taylor: Ephraim Findley,	Johnstown No. 1, ..	.....	.....	.....	W. D. Ludwig.
Patton Borough: Thomas J. Litzinger,	Patton, .....	.....	.....	.....	W. D. Ludwig.
Portage Borough: William Sparks,	Portage, .....	.....	.....	.....	W. D. Ludwig.
Portage: 830 Raymond Itell,	Portage, .....	.....	Portage, .....	.....	W. D. Ludwig.
Richland: 673 J. G. Cooper,	Johnstown No. 3, ..	H. D. Blough,	Johnstown, ..	.....	W. D. Ludwig.
Reade: 748 S. D. McCartney,	Blandburg, .....	.....	.....	.....	W. D. Ludwig.
Sankertown Borough: C. G. Sharbaugh,	Cresson, .....	.....	.....	.....	W. D. Ludwig.
Scalp Level Borough: Geo. W. Wilkinson,	Scalp Level, .....	.....	.....	.....	W. D. Ludwig.
South Fork Borough: John Finn,	South Fork, .....	.....	.....	.....	W. D. Ludwig.
Spangler Borough: I. N. Rodkey,	Spangler, .....	.....	.....	.....	W. D. Ludwig.
Summerhill: 679 Geo. G. Mulhollen,	Wilmore No. 2,	John E. Coleman, ..	Wilmore,	Bell,	W. D. Ludwig.
831 C. T. Settlemeyer,	Wilmore,	Wm. Himes-7-R-14, ..	Wilmore,	Wilmore Rural, ..	W. D. Ludwig.
Jacob Burkey,	Wilmore,				W. D. Ludwig.

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Susquehanna: 671 John H. Mechling,	Cherrytree No. 3, ..				W. D. Ludwig.
670 James Conners,	Hastings,				W. D. Ludwig.
Upper Yoder: Keafer,	Johnstown No. 5, ..	James Hunt, .....	.....	Beaver Run,	W. D. Ludwig.
Washington: 722 Michael Cassidy,	Lilly,	Lilly Bakery, .....	.....	Johnstown,	W. D. Ludwig.
D. H. Sharp,	Lilly, .....	.....	.....	.....	W. D. Ludwig.
West Taylor: Edward Clark,	Johnstown No. 1, ..	.....	.....	.....	W. D. Ludwig.
H. E. Rummel,	Johnstown, .....	.....	.....	.....	W. D. Ludwig.
White: 672 Albert McKee,	Flinton,	Gates store, .....	.....	.....	W. D. Ludwig.
676 Herman Dishart,	Patton,	Herman Dishart, ..	Patton,	Northern Cambria, ..	W. D. Ludwig.

CAMERON COUNTY.

Driftwood Borough: 632 H. E. Coleman,	Driftwood,	Kreider's Store, ..	.....	Driftwood,	H. E. Elliott.
Gibson: 7 H. E. Elliott (F),	Sinnemahoning,	Crum's Store, .....	.....	Bell,	Harrisburg.
35 W. H. Horning (F),	Sinnemahoning,	Crum's Store, .....	.....	Bell,	H. E. Elliott.
82 R. M. Crum (R),	Sinnemahoning,	Crum's Store, .....	.....	Bell,	H. E. Elliott.
72 C. M. Bailey (R),	Sinnemahoning,	C. E. Zerby, .....	.....	.....	W. H. Horning.
669 O. B. Tannet,	Driftwood No. 1, ..	.....	.....	.....	H. E. Elliott.
781 S. W. Nyce,	Dents Run, .....	.....	.....	.....	.....
Grove: 147 L. C. Wykoff (R),	First Fork,	L. C. Wykoff, .....	.....	First Fork,	W. H. Horning.
315 Fred Caldwell,	First Fork,	Fred Caldwell, .....	.....	First Fork,	W. H. Horning.
809 Charles F. Pitts,	Sinnemahoning,	Connell's Store, ..	.....	Bell,	H. E. Elliott.
Lumber: 138 C. A. Swartz (R),	Sterling Run,	Sterling Run Store, ..	.....	Bell,	W. H. Horning.
335 Clayburn E. Hooper,	Cameron,	Schwab Bros. Store, ..	.....	Bell,	W. E. Evans.
Portage: 20 W. B. Evans (F),	Sizerville,	902-12, .....	.....	Bell,	Harrisburg.
Shippert: 314 James E. Peasley,	Emporium,	Frank Kinsler, .....	.....	Bell,	W. E. Evans.
335 A. B. Doll,	Sizerville,	902-1, .....	.....	Bell,	W. E. Evans.

CARBON COUNTY.

Banks: Foster M. Robinson,	Andersfield,	105-J,	Hazleton,	Bell,	Harrisburg.
East Leon: James A. Kenner,	Ashfield,	81-R-42,	Lehighton,	Bell,	Harrisburg.
Amandus C. Ziegler,	Rowmanstown,				Harrisburg.
William H. Reber,	Rowmanstown, R. D., ..				Harrisburg.

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ROSTER OF FOREST FIRE WARDENS OF PENNSYLVANIA—Continued
CARBON COUNTY—Continued

Township, Name, Number.	Address.	Telephone Through Which Warden Can Be Reached.			Reports to.
		Call.	Exchange.	Company.	
East Side Borough: Charles Moyer,	White Haven, .....	.....	.....	.....	Harrisburg.
Franklin: 894 Edwin D. Boyer,	Weissport,	15-7-W,	Leighton,	Consolidated,	Strobeck.
895 Henry E. Neeb,	Leighton No. 3,	4723,	Leighton,	Consolidated,	Strobeck.
Kidder: 333 C. H. Hofman,	White Haven,	J. R. Fox,	White Haven, .....	.....	Strobeck.
331 Frank Wieder,	White Haven,	7-R-2,	Jonas,	Bell,	Strobeck.
533 Ira Getz,	Albrightsville,	John Snyder, .....	.....	Consolidated,	Strobeck.
Lausford Borough: 336 A. C. Neumiller,	Lansford,	Forester's office,	Lansford,	Bell,	McNeal.
Lower Townships: Daniel Mehrkam,	Palmerton,	C. R. R. of N. J. Sta., .....	.....	.....	Harrisburg.
Charles W. Green,	Bowmanstown,	Cubert Herman,	Danielsville,	Bell,	Harrisburg.
William Reph,	Danielsville, .....	.....	.....	.....	Harrisburg.
Mahoning: Edwin J. Lentz,	Bowmanstown No. 1,	136,	Mauch Chunk,	Bell,	McNeal.
Mauch Chunk Borough: 737 J. Keith Esset,	Mauch Chunk, .....	.....	.....	.....	Harrisburg.
Packer: R. J. Strunk,	Weatherly, .....	.....	.....	.....	Harrisburg.
Charles Erch,	Weatherly, .....	.....	.....	.....	Strobeck.
Penn Forest: 374 Milton Altemose,	Albrightsville,	Milton Altemose,	Consolidated,	Penn Forest,	Strobeck.
Towamensing: 896 John Neeb,	Leighton No. 3,	47-22,	Leighton,	Consolidated,	Strobeck.
Weatherly Borough: John Weigand,	Weatherly, .....	.....	.....	.....	Harrisburg.

CENTRE COUNTY.

Boggs: 726 Edward Reese,	Snow Shoe,	208-A,	Snow Shoe,	United,	G. W. Sheeler.
Burnside: 95 Wm. C. Huff (R),	Westport,	F. H. Dutlinger,	Renovo,	Bell,	F. H. Dutlinger.
226 Winfield P. Meeker,	Clarence,	W. F. Meeker,	Snow Shoe,	Commercial,	G. W. Sheeler.
179 James Sankey,	Pine Glen,	Pine Glen P. O.,	Snow Shoe,	Commercial,	G. W. Sheeler.
Centre Hall Borough: 3 Leonard G. Barnes (F),	Centre Hall,	31-3 or 31-5,	Centre Hall,	Bell,	L. G. Barnes.
289 J. C. Rossman,	Centre Hall,	2-3,	Centre Hall,	Bell,	Harrisburg.
Curtin: 181 John A. Maun,	Orviston,	Orviston Supply Co., .....	.....	.....	.....
820 R. J. Mann,	Howard,	J. I. Reed, .....	.....	.....	.....
Ferguson: 169 J. I. Reed,	Pine Grove Mills,	5-3,	Warriors Mark,	Commercial,	G. W. Sheeler.
184 W. T. Wrye,	Warriors Mark No. 2, .....	.....	.....	.....	.....
Gregg: 396 L. P. Smith,	Spring Mills, R. D.,	221,	Spring Mills,	Bell,	J. W. Keller.
193 Wm. H. Weaver,	Spring Mills, R. D.,	11-4,	Spring Mills,	Bell,	C. R. Meek.
188 Homer C. Kachau,	Madisonburg,	Wm. E. Keller,	Spring Mills,	Bell,	C. R. Meek.
Haines: 116 C. D. Motz (R),	Woodward,	Wolfe's Store,	Millheim,	Bell,	C. R. Meek.
175 A. S. Stover,	Aaronsburg,	A. S. Stover,	Millheim,	Commercial,	A. C. Silvius.
Half Moon: 357 J. P. Eves,	Stormstown,	4-6,	Warriors Mark,	Huntingdon & Centre,	C. R. Meek.
Harris: 29 J. W. Keller (F),	Boalsburg,	Boal Tavern,	State College,	Bell,	J. W. Keller.
122 Robert Reitz (R),	Boalsburg,	David Bohn,	State College,	Bell,	Harrisburg.
183 W. A. Leech,	State College,	E. W. Hess,	State College,	Commercial,	J. W. Keller.
172 J. H. Jacobs,	Boalsburg,	Dr. Kidder,	Both Phones,	Bell,	J. W. Keller.
164 James W. Swabb,	Linden Hall,	72-R-5,	Centre Hall,	Bell,	J. W. Keller.
Howard Borough: 156 Samuel Shay,	Howard,	Any phone,	Howard, .....	.....	G. W. Sheeler.
Hunston: 177 Wilson Stiver,	Julian,	H. K. Mattens, .....	.....	Bell,	G. W. Sheeler.
Liberty: 161 J. W. Coder,	Blanchard,	Robert's Store,	Martha,	Bell,	G. W. Sheeler.
Marion: 315 John W. Holmes,	Nittany No. 1,	822,	Beech Creek,	Commercial,	G. W. Sheeler.
255 C. W. Bartley,	Zion,	W. I. Walizer,	Howard,	Bell,	L. G. Barnes.
Miles: 167 Clement H. Gramly,	Rebersburg,	907-3,	Bellefonte, .....	.....	L. G. Barnes.
135 Leslie M. Stover (R),	Livonia,	Exchange,	Rebersburg,	Bell,	C. R. Meek.
873 John L. Wolf,	Livonia,	17-R-2,	Millheim,	Bell,	R. B. Winter.
Milesburg Borough: 188 Edward Quick,	Milesburg,	L. M. Stover,	Millheim,	Bell,	R. B. Winter.
Patton: 203 Walter J. Stine,	Stormstown No. 1,	John Jodon, 86-J3,	Bellefonte,	Bell,	G. W. Sheeler.
178 George B. Thompson,	State College,	903-15,	Bellefonte,	Bell,	J. W. Keller.
Penn: 35 Charles R. Meek (F),	Cohran,	45,	State College,	Commercial,	J. W. Keller.
354 E. I. Musser,	Millheim,	John Musser,	State College,	Bell,	Harrisburg.
Phillipsburg Borough: 260 L. E. Hess,	Phillipsburg,	106-X,	Millheim, .....	.....	C. R. Meek.
Potter: 88 W. E. Montgomery (F),	Spring Mills, R. D.,	F. A. Carson,	Phillipsburg,	Huntingdon & Centre,	G. W. Sheeler.
111 Wm. F. McKinney (R),	Spring Mills, R. D.,	W. H. Blauert,	Centre Hall,	Bell,	Harrisburg.
180 H. A. McClellan,	Tusseyville,	W. F. McKinney,	Centre Hall,	Commercial,	W. E. Montgomery.
		80-24,	Centre Hall,	Bell,	W. E. Montgomery.

ROSTER OF FOREST FIRE WARDENS OF PENNSYLVANIA—Continued.
CENTRE COUNTY—Continued.

Township, Name, Number.	Address.	Telephone Through Which Warden Can Be Reached.			Reports to.
		Call.	Exchange.	Company.	
Rush: 209 Osborn P. McCord, 194 Miles Hoover, 272 George M. Pfoutz, Snow Shoe: 52 George W. Sheeler (F), 185 James F. Uzzell, Jr., 204 George McCartney, 684 George B. Uzzell, Spring: 165 Wm. R. Hoover (R), Union: 187 Edward T. Hall, Walker: 189 Wm. M. Harnish, 186 W. E. Kessinger, Worth: 171 H. C. Woodring, 525 John Kelley,	Phillipsburg, Sandy Ridge, Sandy Ridge, Snow Shoe, Snow Shoe, Clarence, Snow Shoe, Bellefonte No. 2, Fleming, Mingoville, Nittany, Port Matilda, Port Matilda,	A. S. Cross, Ridge Hotel, Central, J. F. Uzzell, Washington House, 88J-14, 912-32, F. W. Dunkle, W. E. Kessinger, 913-21, 913,	Osceola Mills, Snow Shoe, Snow Shoe, Snow Shoe, Pleasant Gap, Bellefonte, Zion, Bellefonte or Tyrone, Bellefonte,	 Both Phones, United, United, Bell, Bell, United, Nittany, Bell, Bell,	G. W. Sheeler. G. W. Sheeler. G. W. Sheeler. G. W. Sheeler. G. W. Sheeler. G. W. Sheeler. G. W. Sheeler. L. G. Barnes. G. W. Sheeler. L. G. Barnes. L. G. Barnes. G. W. Sheeler. G. W. Sheeler.

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CHESTER COUNTY.

Birmingham: James F. Sharpless, West Bradford: John E. Baldwin, East Brandywine: George Cook, West Brandywine: T. E. Windle, Charlestown: H. C. Rowland, East Coventry: Sumner Smith,	West Chester, No. 6, West Chester No. 8, Lyndell, Coatesville No. 3, Spring City, Parker Ford,	 208-E, F. W. Sheppard,	 West Chester, Coatesville,	 United, Bell,	Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg.
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North Coventry: William Powell, Joseph M. Brown, Frank C. Coates, S. F. Graham, East Goshen: Wm. D. Garrett, Honeybrook: Geo. E. Wilson, West Pikeland: H. C. Rowland, Schuylkill: Eugene Raser, South Coventry: Earl J. Essick, Arthur H. Essick, Samuel L. Favinger, Thornbury: D. Garrett, Tredyfin: D. W. Conway, Upper Uwchlan: Geo. E. Wilson, East Vincent: H. C. Rowland, Wallace: Geo. E. Wilson, Warwick: Josiah H. Essick, Westtown: Wm. D. Garrett, West Whiteland: Harry F. Dague,	Pottstown No. 1, Pottstown No. 1, Pottstown, St. Peters No. 1, West Chester, R. D., St. Peters No. 3, Spring City, Phoenixville No. 3, Saint Peters, Saint Peters, Pottstown, West Chester, R. D., Valley Forge, St. Peters No. 3, Spring City, St. Peters No. 3, Saint Peters, R. D., West Chester, R. D., Whitford,	Chas. Boyer, 534-J-1, Owen Raser, J. B. Chrisman, or C. M. James, John W. Young, J. S. Garrett, J. F. Myers, Joseph Wonderlich, J. S. Garrett,	Pottstown, Pottstown, Phoenixville, Pughtown, Pughtown, Pughtown, West Chester, Phoenixville, Conestoga, West Chester,	 Bell, Bell, Bell, Bell, Postal,	Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg.
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CLARION COUNTY.

Cullensburg Borough: A. B. Klingensmith, Clarion Borough: L. L. Himes, Elk: John W. Thompson, Farmington: John McClellan, Highland: J. A. Potts, Hawthorn Borough: G. B. Dovenspike,	Cullensburg, Clarion, Shippenville, Scotch Hill, Mela, Hawthorn,	Central, Dr. G. V. Hepler,			Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg.
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ROSTER OF FOREST FIRE WARDENS OF PENNSYLVANIA—Continued.

CLARION COUNTY—Continued.

Township, Name, Number.	Address.	Telephone Through Which Warden Can Be Reached.			Reports to.
		Call.	Exchange.	Company.	
Knox:					
Thomas McLaughlin,	Lacinda,	John Ochs,	Redbank,		Harrisburg.
Limestone:	Limestone,	Store,	Clarion or New Beth-		Harrisburg.
Thomas D. Spence,			lehem.		
Madison:				Farmers Phone,	Harrisburg.
Robert F. Hunter,	Rimersburg No. 2,	R. M. Martin,			Harrisburg.
Mill Creek:	Sigel No. 2,	John Nicholson,	Clarion at Fisher,	Redbank Farmers',	Harrisburg.
John Nicholson,				Leatherwood,	Harrisburg.
Monroe:	Reldsburg,	R. P. Hannab,	Clarion,		Harrisburg.
W. R. Gibson,					Harrisburg.
Paint:	Shippensville,				Harrisburg.
J. W. Young,	Shippensville,				Harrisburg.
A. W. Vovinkel,	Shippensville,				Harrisburg.
Wm. Brichman,					Harrisburg.
Porter:	New Bethlehem,				Harrisburg.
W. B. Himes,					Harrisburg.
Rimersburg Borough:	Rimersburg,				Harrisburg.
W. A. Wick,					Harrisburg.
Strattonville Borough:	Strattonville,				Harrisburg.
H. Bird Wilson,					Harrisburg.
Washington:	Newmansville, R. D.,	B. F. Frill,		Redbank,	Harrisburg.
B. F. Frill,					

CLEARFIELD COUNTY.

Beccarie:	Rosebud,	W. S. Brady,	Rosebud,	C. & H.,	Wm. F. Dague.
643 Daniel M. Spangler,					
Bell:	Mahaftay,	13-R-3,	Mahaftay,	Bell,	Wm. F. Dague.
735 Andrew McQuown,					
Bigger:	Madera,	Hileman House,	Madera,	Both Phones,	Wm. F. Dague.
617 Clark Hileman,	Madera,				Wm. F. Dague.
Bigler:					
Charles G. Gill,					
Bloom:	Gramplan,	A. G. Dale,	Gramplan,	Farmers (C. & H.),	Wm. F. Dague.
452 Mark W. Lines,					

[illegible]

ROSTER OF FOREST FIRE WARDENS OF PENNSYLVANIA—Continued.

CLEARFIELD COUNTY—Continued.

Township, Name, Number.	Address.	Telephone Through Which Warden Can Be Reached.			Reports to.
		Call.	Exchange.	Company.	
Lawrence: 457 W. C. Goss,	Clearfield,	429,	Clearfield,	H. & C.,	Wm. F. Dague.
304 Jonathan Ogden,	Clearfield, R. D.,	Jonathan Ogden,	Clearfield,	H. & C.,	Wm. F. Dague.
Morris: 456 Philip Sarow,	Morrisdale,	Morrisdale Coal Co., .....	.....	Both Phones,	Wm. F. Dague.
Osceola Borough: 460 Guy Sankey,	Osceola Mills,	Mat Askey,	Osceola Mills,	H. & C.,	Wm. F. Dague.
Penn: 455 W. K. Danvir,	Gramplan,	Reuben Hartzfelt, .....	.....	Summerville,	Wm. F. Dague.
Pike: 15 William F. Dague (F),	Clearfield,	238-2,	Clearfield,	H. & C.,	Harrisburg,
450 G. O. Goss,	Curwensville,	G. O. Goss,	Curwensville,	H. & C.,	Wm. F. Dague.
461 G. W. Anderson,	Curwensville, R. D.,	G. W. Anderson, .....	.....	.....	Wm. F. Dague.
Pine: 117 John Nelson, (R),	Penfield,	John Nelson,	Penfield,	Bell,	Wm. F. Dague.
97 Frank Johnston (R),	Anderson Creek,	Frank Johnston, .....	.....	Bell,	C. L. Kirk.
Sandy: 459 George Beer,	Sabula,	Edson D. Hoyt, .....	.....	Bell,	Wm. F. Dague.
593 James Kirk,	Sabula,	James Kirk, .....	.....	Bell,	C. L. Kirk.
Woodward: 461 Arch Moyer,	Olanta, R. D.,	30-22,	Curwensville,	Bell,	Wm. F. Dague.
550 T. E. Lawford,	Houtzdale, R. D., .....	.....	.....	.....	Wm. F. Dague.

CLINTON COUNTY.

Allison: James W. Gould,	Lock Haven, .....	.....	.....	.....	J. B. Ryon.
Bald Eagle: 435 H. A. Karchner,	Mill Hall,	24-31,	Mill Hall,	Commercial,	J. R. Hogentogler.
535 John Kirby,	Mill Hall No. 2,	90-43,	Lock Haven,	Bell,	J. B. Ryon.
773 John L. Bickel,	Mill Hall,	S. A. Wilt,	Mill Hall,	Bell,	J. B. Ryon.
Myron Gummo,	Beech Creek No. 1, .....	.....	.....	.....	J. B. Ryon.
Beech Creek Borough: 144 John Winkbleck (R),	Beech Creek,	Central,	Beech Creek,	United,	G. W. Sheeler.
Beech Creek: 132 A. L. Shoemaker (R),	Beech Creek,	Central,	Beech Creek,	United,	G. W. Sheeler.

Castanea: 400 John L. Harvey,	Castanea,	23-J,	Lock Haven,	United,	J. R. Hogentogler.
Chapman: 14 Horace F. Critchley (F),	North Bend,	917-12,	Renovo,	Bell,	Harrisburg.
34 Charles A. Hemmerley (R),	North Bend,	917-12,	Renovo,	Bell,	H. F. Critchley.
434 Dayton VanSickle,	North Bend,	913-3,	Renovo,	Bell,	H. F. Critchley.
200 Vernon VanSickle,	North Bend,	R. F. Nuss,	Renovo,	Bell,	H. F. Critchley.
201 Michael Lopeman,	Gleasonton,	916-5,	Renovo,	Bell,	H. F. Critchley.
236 Elmer E. Feimlee,	Hyner,	Hyner Post Office,	Renovo,	Bell,	H. F. Critchley.
Colebrook: 139 James F. Young,	Farrandville,	H. W. Ref. Co.,	Lock Haven,	Bell,	J. B. Ryon.
Crawford: 358 Harvey Lehman,	Carroll,	J. W. Lehman,	Loganton,	Commercial,	H. S. Metzger.
138 C. C. Fetterhoff,	Jersey Shore, R. D.,	123,	Ortole,	Commercial,	J. R. Hogentogler.
Dunstable: 697 Elmer Deise,	Lock Haven,	910-6,	Lock Haven,	Bell,	J. B. Ryon.
East Keating: 96 Wm. C. Huff (R),	Westport,	F. H. Dutlinger,	Renovo,	Bell,	F. H. Dutlinger.
355 R. B. Lyman,	Keating via Westport,	N. Y. C. R. R., .....	.....	Railroad Phone,	F. H. Dutlinger.
Flemington Borough: Charles Chase,	Westport, .....	.....	.....	.....	F. H. Dutlinger.
Gallagher: 803 Willis Button,	Flemington, .....	.....	.....	.....	J. R. Hogentogler.
Greene: 37 Homer S. Metzger (F),	Haneyville,	2912, .....	.....	United,	R. R. Neefe.
24 J. R. Hogentogler (F),	Loganton No. 1,	H. S. Metzger,	Loganton,	Sugar Valley,	Harrisburg.
196 T. W. Kreamer,	Loganton No. 2,	84,	Loganton,	Sugar Valley,	Harrisburg.
250 James H. Rocky,	Loganton No. 2,	2,	Loganton,	Commercial,	J. R. Hogentogler.
Grugan: 51 James B. Ryon (F),	Loganton, R. D.,	813,	Loganton,	Sugar Valley,	J. R. Hogentogler.
113 R. K. Merrill (R),	Glen Union, .....	.....	.....	.....	Harrisburg.
Lamar: 640 G. B. M. Barner,	Glen Union, .....	.....	.....	.....	J. B. Ryon.
196 J. B. Strunk,	Salona,	2041,	Mill Hall,	United,	J. R. Hogentogler.
Ledy: 42 Max E. Muller (F),	Mill Hall, R. D.,	4631,	Mill Hall,	Nittany,	J. R. Hogentogler.
Logan: 637 R. S. Meyer,	Hammersley Fork,	M. E. Muller,	Germania (Bell),	Dept. of Forestry,	Harrisburg.
644 W. H. Rishel,	Tamarack, .....	.....	.....	.....	M. E. Muller.
Noyes: 16 Forrest H. Dutlinger (F),	Booneville,	Alex. S. Greninger,	Loganton,	Commercial,	J. R. Hogentogler.
70 George W. Armstrong (R),	Tylersville, .....	.....	Loganton,	Sugar Valley,	J. R. Hogentogler.
129 Howard P. Seese (R),	Westport,	915-6,	Renovo,	Bell,	Harrisburg.
191 Henry E. Kepler,	Westport,	915-2,	Renovo,	Bell,	F. H. Dutlinger.
Pine Creek: 341 Wm. M. McKinney,	Renovo,	J. W. Kepler,	Renovo,	Bell,	F. H. Dutlinger.
Porter: 874 W. H. Knarr,	Avia,	1421,	Avia,	Clinton,	R. R. Neefe.
833 W. B. Strunk,	Avia,	242,	Mill Hall,	Nittany,	J. R. Hogentogler.
South Renovo Borough: 86 L. O. Weaver,	Lamar,	4631,	Mill Hall,	Nittany,	J. R. Hogentogler.
.....	Renovo,	15-R,	Renovo,	Bell,	F. H. Dutlinger.

COLUMBIA COUNTY.

Mifflin:	Nescopeck,	D. C. Bond,	Consolidated,	Harrisburg.
Rush M. Lutz,				
Sugarloaf:	Jamison City.			Harrisburg.
B. S. Brush,				

Beaver: S. S. McMillen,	Springboro No. 36, ..	.....	.....	Harrisburg.
Bloomfield: J. P. Boutwell,	Centre ville No. 2, ..	16 B,	Riceville,	Harrisburg.
Cambridge: Chas. O. Allen,	Cambridge Springs, ..	523 W, .....	.....	Harrisburg.
Cambridge Springs Borough: John F. Himebaugh, ..	Cambridge Springs, ..	Mrs. Will Penoyet, ..	.....	Harrisburg.
Centre ville Borough: Engene Cook,	Centre ville, .....	.....	.....	Harrisburg.
Cussewago: J. A. Webster,	Cambridge Springs, ..	.....	.....	Harrisburg.
Conneaut Lake Borough: W. B. Brown,	Conneaut Lake, .....	.....	.....	Harrisburg.
Fairfield: S. W. Powell,	Cochran ton No. 60, ..	24-13, .....	.....	Harrisburg.
Fallowfield: Harry C. Porter,	Hartstown, .....	.....	.....	Harrisburg.
Hayfield Borough: James M. Snyder,	Meadville No. 1, ..	.....	.....	Harrisburg.
Hydrotown Borough: J. Frank Witherop, ..	Hydrotown, .....	.....	.....	Harrisburg.
Linesville Borough: A. J. Rushmore,	Linesville, .....	.....	.....	Harrisburg.
Mead: S. D. Minnium,	Meadville, .....	.....	.....	Harrisburg.
Oil Creek: N. W. Reynolds,	Titusville No. 79, ..	.....	.....	Harrisburg.
Pine: Frank Bullis,	Linesville No. 40, ..	M. Mann-73-3, ..	.....	Harrisburg.
Randolph: W. A. Powell,	Guys Mills,	12-R-11,	Guys Mills,	Harrisburg.
Rockdale: Elmer Mathews,	Cambridge Sp. No. 28, ..	508 U, .....	.....	Harrisburg.
Rome: E. Lynn Hummer,	Titusville No. 75, ..	.....	.....	Harrisburg.
Sadsbury: Alfred C. Willard,	Conneaut Lake No. 51, ..	.....	.....	Harrisburg.
Saegertown Borough: Clyde N. Rickerson, ..	Saegertown, .....	.....	.....	Harrisburg.

ROSTER OF FOREST FIRE WARDENS OF PENNSYLVANIA—Continued.
CRAWFORD COUNTY—Continued.

Township, Name, Number.	Address.	Telephone Through Which Warden Can Be Reached.			Reports to.
		Call.	Exchange.	Company.	
Sparta: Fred L. Bryant,	Spartansburg No. 82,	.....	.....	.....	Harrisburg.
Steuben: Reuben Wall,	Tryonville, .....	.....	.....	.....	Harrisburg.
Summit: W. A. Barbour,	Harmansburg,	W. A. Barbour, .....	.....	Bell, Meadville Local, or Linesville Local.	Harrisburg.
Troy: E. B. Lonctot,	Townville No. 8,	1723 L,	Tifusville,	Petroleum,	Harrisburg.
Union: John Ernst,	Meadville No. 6, .....	.....	.....	.....	Harrisburg.
Venango: Ray Sherred,	Cambridge Sp. No. 3,	536 N,	Cambridge,	Local,	Harrisburg.
Wayne: Seymour Johnson,	Cochranston, R. D., .....	.....	.....	.....	Harrisburg.
Woodcock Borough: Wallace Harmon,	Woodcock,	516 P, .....	.....	.....	Harrisburg.

CUMBERLAND COUNTY.

Cook: 61 John R. Williams (F),	Pine Grove Furnace,	44-E,	Mount Holly Springs,	C. V.,	Harrisburg.
47 James E. Powers (F),	Pine Grove Furnace,	44-E,	Mount Holly Springs,	C. V.,	J. R. Williams.
864 Oscar Barbour,	Pine Grove Furnace,	44-H,	Mount Holly Springs,	C. V.,	J. R. Williams.
634 Robert L. Brown (R),	Pine Grove Furnace,	R. L. Brown,	Mount Holly Springs, .....	.....	Harrisburg.
East Pennsboro: E. B. Frank Shuman,	West Fairview No. 1, .....	.....	.....	.....	H. E. Bryner.
Frankford: 35 Albert Mountz,	Newville, No. 3,	409,	Newville,	United,	Harrisburg.
Hampden: Jacob W. Waggoner,	Mechanicsburg, R. D.	D. H. Shank, Store,	Mechanicsburg,	C. V.,	Harrisburg.
W. E. Forney,	Mechanicsburg, .....	.....	.....	.....	Harrisburg.
Lower Mifflin: 379 Murray D. Stum,	McCrea, .....	.....	.....	.....	H. E. Bryner.
Wm. V. Dunbar,	Newville No. 2,	McCrea Post Office, .....	.....	.....	Harrisburg.

Monroe: W. C. Shumberger,	Allen,	902-2,	Carlisle,	Bell,	Harrisburg.
North Middleton: Wm. H. Lippert,	Carlisle, .....	.....	.....	.....	Harrisburg.
John E. Brown,	Carlisle No. 2,	Charles Henry,	Carlisle,	Bell,	Harrisburg.
Silver Spring: N. W. Albright,	Mechanicsburg, RD.,	7-12,	Mechanicsburg,	United,	Harrisburg.
Southampton: 333 Solomon Hancock,	Shippensburg,	175-R-13,	Shippensburg,	Bell,	R. G. Conklin.
619 H. S. Mooney,	Shippensburg,	Leonard Baker,	Shippensburg,	Bell,	R. G. Conklin.
South Middleton: Ira A. Coulson,	York Springs No. 6, .....	.....	.....	.....	Harrisburg.
W. F. Donnelly,	Bolling Springs, .....	.....	.....	.....	Harrisburg.
Upper Mifflin: 378 E. P. Hassinger,	Newville, No. 4,	81-21,	Newville,	Bell,	H. E. Bryner.
J. A. Brandt,	Newville, R. D.,	74-5,	Newville,	Bell,	Harrisburg.

DAUPHIN COUNTY

Conewago: J. S. Farver,	Elizabethtown No. 4,	113-11,	Elizabethtown,	Bell,	Harrisburg.
Dauphin: Wm. H. Ege,	Dauphin, .....	.....	.....	.....	Harrisburg.
Robert Puff,	Dauphin, .....	.....	.....	.....	Harrisburg.
Derry: Christian F. Herr,	Hummelstown No. 1, .....	.....	.....	.....	Harrisburg.
East Haven: J. F. Hampton,	Grantville, .....	.....	.....	.....	Harrisburg.
Wm. F. Kline,	Grantville No. 1, .....	.....	.....	.....	Harrisburg.
Elizabethville Borough: Thomas G. Lentz,	Elizabethville,	Milling Co. office,	Elizabethville,	Bell,	Harrisburg.
Gratz Borough: F. M. Ritzman,	Gratz, .....	.....	.....	.....	Harrisburg.
Halfax: N. C. Matter,	Halfax No. 1,	C. M. Bowerman's Store, Fisherville,	Halfax,	Bell,	Harrisburg.
Highspire Borough: Geo. A. Hoover,	Highspire, .....	.....	.....	.....	Harrisburg.
Jackson: Philip Parmer,	Elizabethville,	Philip Parmer,	Elizabethville,	United,	Harrisburg.
Jefferson: John M. Rutter,	Carsonville,	Elsworth Enders,	Elizabethville,	United,	Harrisburg.
Londonberry: M. S. Baum,	Middletown,	S. C. Brinser, .....	.....	.....	Harrisburg.
Lower Swatara: Samuel J. Gruber,	Middletown, .....	.....	.....	.....	Harrisburg.
Lykens: Jonathan Smeltz,	Gratz, .....	.....	.....	.....	Harrisburg.

ROSTER OF FOREST FIRE WARDENS OF PENNSYLVANIA—Continued.
DAUPHIN COUNTY—Continued.

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Township, Name, Number.	Address.	Telephone Through Which Warden Can Be Reached.			Reports to.
		Call.	Exchange.	Company.	
Middletown: Frank A. Hill,	Middletown, .....	.....	.....	.....	Harrisburg.
Middle Paxton: Samuel E. Paul,	Piketown No. 1, .....	.....	.....	.....	Harrisburg.
James Lebo,	Dauphin, .....	.....	.....	.....	Harrisburg.
Rush: Elmer S. Carl,	Tower City No. 1, .....	.....	.....	.....	Harrisburg.
Susquehanna: S. O. Hassler,	Langletown No. 4, .....	.....	.....	.....	Harrisburg.
Swatara: Chas. E. Livingston,	Oberlin, .....	.....	.....	.....	Harrisburg.
Uniontown Borough: Elmer W. Dockey,	Pillow,	E. W. Dockey,	Mandata,	Bell,	Harrisburg.
Upper Paxton: Wm. C. Mills,	Millersburg,	Millersburg Milling or P. R. R. Round House, Rife Store, 34 K,	Millersburg,	United or Bell,	Harrisburg.
Elmer E. Spotts,	Millersburg No. 2, .....	.....	Millersburg,	Bell,	Harrisburg.
David W. Kelter,	Millersburg, .....	.....	Millersburg,	Bell,	Harrisburg.
James M. Martin,	Faxton, .....	.....	.....	.....	Harrisburg.
Washington: Harvey E. Lubold,	Elizabethville No. 1,	Daniel Romberger,	Elizabethville,	Bell,	Harrisburg.
Wayne: Jos. H. Romberger,	Halifax No. 1,	Byron Shoop,	Elizabethville,	C. V.,	Harrisburg.
Joseph Miller,	Waynesville,	D. M. Lebo-12-21,	Halifax,	Bell,	Harrisburg.
West Hanover: John H. Mumma,	Piketown,	J. H. Mumma,	Shellsville,	East Hanover,	Harrisburg.
West Londonderry: John E. Felket,	Middletown No. 1, .....	.....	.....	.....	Harrisburg.
Williamstown Borough: James Williams,	Williamstown,	Lane Renbendall, .....	.....	Bell,	Harrisburg.
Williams: Michael Knorr,	Williamstown,	Jos. Tovey,	Lykens,	C. V.,	Harrisburg.

ELK COUNTY.

Benezette: 65 Charles E. Zerby (F),	Medix Run,	Exchange,	Medix Run,	Bell,	Harrisburg.
77 M. N. U. L. Brooks (R),	Driftwood,	C. E. Zerby,	Benezette,	Bell,	C. E. Zerby.
488 W. H. Patterson,	Benezette,	Exchange,	Benezette,	Both phones near,	C. E. Zerby.
526 Norman Johnson,	Dents Run,	Norman Johnson,	Benezette,	Bell,	C. E. Zerby.
564 W. B. Johnson,	Benezette, R. D.,	W. B. Johnson,	Benezette,	Bell,	C. E. Zerby.
Benzinger: H. O. Wilson,	St. Marys, .....	.....	.....	.....	C. E. Zerby.
Fox: 547 John Smithbauer,	Kersey No. 28,	M. B. Spangler,	Kersey, .....	.....	C. E. Zerby.
Jay: 487 W. H. Weed,	Weedville,	Exchange,	Weedville,	Weedville,	C. E. Zerby.
522 Norman H. McLeod,	Caledonia,	Exchange,	Weedville,	Bell,	C. E. Zerby.
Johnsonburg Borough: 549 George B. McClintock,	Johnsonburg,	6132,	Johnsonburg,	Elk,	C. E. Zerby.
Jones: 548 George W. Bowley,	Wilcox,	G. W. Bowley,	Wilcox,	Union Commercial,	C. E. Zerby.
Ridgway: Samuel Johnson,	Rolfe, .....	.....	.....	.....	C. E. Zerby.
Ridgway Borough: 546 Frank McChesney,	Ridgway,				C. E. Zerby.
St. Marys Borough: J. J. Erich,	St. Marys,				C. E. Zerby.

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FAYETTE COUNTY

Bullsikin: Anzi McClellan,	Moyer,				Harrisburg.
A. L. Dick,	Stauffer,				Harrisburg.
Connellsville: John Jaynes,	S. Connellsville,	978, .....	.....	Bell,	Harrisburg.
Georges: John Shanabarger,	Fairchance,	John Hickie-123-J, .....	.....	Bell,	Harrisburg.
Henry Clay: Jos. H. Humbertson,	Humberston, .....	.....	.....	.....	Harrisburg.
North Union: John C. Beatty,	Uniontown No. 2,	525-R-3,	Uniontown,	Bell,	Harrisburg.
Saltlick: Nicholas L. Sanner,	White, .....	.....	.....	.....	Harrisburg.
South Union: Frank Schnatterly,	Hopwood,	1092-J, .....	.....	Bell,	Harrisburg.
Wm. P. Beatty,	Uniontown, .....	.....	.....	.....	Harrisburg.
Stewart: E. A. Jackson,	Ohlspyle, .....	.....	.....	.....	Harrisburg.
Wharton: William Chisnell,	Farmington,	5731-R-22,	Uniontown,	Bell,	Harrisburg.
Albert M. West,	Chalk Hill, .....	.....	Chalk Hill,	Bell,	Harrisburg.

ROSTER OF FOREST FIRE WARDENS OF PENNSYLVANIA—Continued.
FOREST COUNTY.

Township, Name, Number.	Address.	Telephone Through Which Warden Can Be Reached.			Reports to.
		Call.	Exchange.	Company.	
Barnett: J. J. Kellogg,	Cooksburg, Box 27, .....	.....	.....	.....	Harrisburg.
Harmony: F. M. Hoovler,	Pleasantville No. 2, .....	.....	.....	.....	Harrisburg.
Howe: Charles Adolfsen,	Trueman, .....	.....	.....	.....	Harrisburg.
Kingsley: E. E. Zuendel,	Starr, .....	.....	.....	.....	Harrisburg.
Tionesta Borough: A. W. Stroup,	Tionesta, .....	.....	.....	.....	Harrisburg.
J. W. Landers,	Tionesta, .....	.....	.....	.....	Harrisburg.
Tionesta: Asa W. Heath,	Tionesta, .....	.....	.....	.....	Harrisburg.
Adam Mealy,	Tionesta, .....	.....	.....	.....	Harrisburg.
A. L. Thomson,	Tionesta, .....	.....	.....	.....	Harrisburg.

FRANKLIN COUNTY

Fannett: 593 J. Floyd Lytle,	Ambersen Valley,	J. F. Lytle,	Dry Run,	Orbisonia,	H. E. Bryner.
595 James F. Wise,	Concord,	J. A. Johns,	Blairs Mills,	Orbisonia,	H. E. Bryner.
J. B. Crouse,	Spring Run, .....	.....	.....	.....	H. E. Bryner.
Green: 12 Robert G. Conklin (F),	Fayetteville No. 2,	11-N,	Fayetteville,	C. V.,	Harrisburg.
120 Harry B. Perry (R),	Fayetteville No. 2,	R. G. Conklin,	Fayetteville,	C. V.,	R. G. Conklin.
136 Henry L. Stull (R),	Black Gap,	H. L. Stull,	Fayetteville,	C. V.,	R. G. Conklin.
279 W. L. Eckenrode,	Fayetteville, R. D.,	R. M. Renfrew,	Chambersburg,	Bell,	R. G. Conklin.
Gullford: 131 John S. Shaffer (R),	Chambersburg No. 11,	2-K,	Waynesboro,	C. V.,	L. E. Staley.
Letterkenny: 130 J. Frank Smith (R),	Chambersburg No. 4,	750-B,	Chambersburg,	United,	A. E. Rupp.
222 John H. Horne,	Freestone, .....	.....	St. Thomas,	C. V.,	A. E. Rupp.
274 E. S. Newton,	Upper Strasburg,	D. H. Byers,	Chambersburg,	C. V.,	A. E. Rupp.

Lurgan: 223 D. L. Sentman,	Roxbury,	Shields Store,	Shippensburg,	C. V.,	A. E. Rupp.
595 E. Z. Jones,	Mowersville,	Robert Davis,	Newburg,	C. V.,	A. E. Rupp.
Metal: 283 Alvin J. Horning,	Metal,	A. J. Horning,	St. Thomas,	Orbisonia,	A. E. Rupp.
221 Henry Stals,	Richmond Furnace,	F. C. Worthington, .....	.....	C. V.,	A. E. Rupp.
222 Robert F. Kent,	Fannettsburg, .....	.....	.....	.....	A. E. Rupp.
Montgomery: 337 James Carbaugh,	Mercersburg, .....	.....	Mercersburg,	Bell,	A. E. Rupp.
287 Benj. F. Shives,	Mercersburg,	60-R-12,	Mercersburg,	Western Electric,	A. E. Rupp.
230 James V. Hornbaker,	Mercersburg No. 3,	86,	Mercersburg,	Bell,	A. E. Rupp.
Peters: 50 Alfred E. Rupp (F),	Fort London,	4-G,	St. Thomas,	United,	Harrisburg.
218 Millard Kline,	Fort London,	79-4,	Mercersburg,	Bell,	A. E. Rupp.
219 Harry Ensminger,	Foltz,	A. E. Rupp,	Mercersburg,	Bell,	A. E. Rupp.
Quincy: 56 Lewis Staley (F),	Mont Alto,	Ritzels Store,	Mercersburg,	Bell,	A. E. Rupp.
66 E. A. Ziegler (F),	Mont Alto,	9-Y,	Fayetteville,	C. V.,	Harrisburg.
28 J. S. Illick (F),	Mont Alto,	Forest Academy,	Waynesboro,	Bell,	L. E. Staley.
48 G. A. Retan (F),	Mont Alto,	Forest Academy, .....	.....	Both phones,	L. E. Staley.
76 John Bricker (R),	Waynesboro,	Forest Academy, .....	.....	Both phones,	L. E. Staley.
J. T. Staley,	Fayetteville, RD.,	L. E. Staley,	Fayetteville,	C. V.,	L. E. Staley.
Southampton: 278 W. E. Perry,	Fayetteville No. 1,	Wm. H. Smith, .....	.....	.....	R. G. Conklin.
St. Thomas: 217 John Foreman,	Edenville,	John Foreman,	Chambersburg and	United,	A. E. Rupp.
824 John E. Spidel,	St. Thomas,	Chas. Dixon,	St. Thomas,	C. V.,	A. E. Rupp.
Warren: 216 Luther A. Zimmerman,	Sylvan,	Albert Zimmerman,	Mercersburg,	Bell,	A. E. Rupp.
811 Jacob Pine,	Sylvan,	4331,	Mercersburg,	Bell,	A. E. Rupp.
Washington: 140 H. L. Thomas (R),	Waynesboro No. 4,	906-R-12,	Waynesboro,	Bell,	L. E. Staley.

FULTON COUNTY

Ayr: 765 D. L. Alexander,	McConnellsburg,	J. S. Alexander, .....	.....	Bell,	A. E. Rupp.
809 Charles B. Taylor,	McConnellsburg,	Wm. Brewer, .....	.....	Bell,	A. E. Rupp.
810 Harvey J. Unger,	Clio,	22-R-5,	McConnellsburg,	Bell,	A. E. Rupp.
Belfast: 821 J. Frank Hess,	Warfordsburg No. 1,	5, .....	.....	Bell,	A. E. Rupp.
686 Milton Melliott,	Needmore No. 2,	3-R-31,	Breezewood or Mc-	Bell,	A. E. Rupp.
112 E. A. Truax,	Needmore No. 2,	W. R. Truax,	McConnellsburg,	Bell,	A. E. Rupp.
Bethel: 747 Alfred F. Schetrompf,	Warfordsburg, .....	.....	.....	.....	A. E. Rupp.

HUNTINGDON COUNTY.

Barree:	90 W. H. Harpster (R), 428 John W. McAlevy, Brady:	Charter Oak, Neffs Mills, Airdale,	W. H. Harpster, Vernon L. Porter, J. W. McAlevy, W. P. Metz, A. J. Black, 19-R-21, L. R. Bowman, W. S. Hicks, 7-R-2, D. L. Whitsel, Oliver Diven, Decorum, Neelyton, Graysville, Franklinville, Franklinville, Huntingdon No. 3, Huntingdon, Shy Beaver, Shy Beaver, McAleysfort, McAleysfort, McAleysfort, McAleysfort, McAleysfort, Huntingdon, Enlirken, Enlirken, Petersburg, Petersburg, RD., Petersburg, Mill Creek,	Petersburg, Petersburg, Bell Transfer, Bell, Coalmont, Salttillo, Salttillo or Three Springs, Salttillo, Salttillo, Orbisonia, Neelytown, Warriors Mark, Warriors Mark, Huntingdon, Woodcock Valley, Marktesburg, Lewistown, Lewistown, Exchange, Mrs. O. M. Whipple, 945-R-12, A. Criswell, Enlirken P. O., T. Roy Morton, J. H. Scott, 943-R-2,	N. S. C. Mutual, Bell, N. W. Mutual, Allensville & Mill creek, Bell, Coalmont, Salttillo, Salttillo or Three Springs, Salttillo, Orbisonia, Neelytown, Warriors Mark, Warriors Mark, Huntingdon, Stone Valley, Bell, Bell, Bell, Bell, Petersburg, Huntingdon, Junlata Union, Bell, Woodcock Valley, Huntingdon, Petersburg, Petersburg, J. & S. C., J. & S. C., Bell,	J. W. Keller, T. R. Morton, A. W. Bodine, Harrisburg, Harrisburg, Harrisburg, A. W. Bodine, A. W. Bodine, Harrisburg, A. W. Bodine, A. W. Bodine, A. W. Bodine, T. R. Morton, T. R. Morton, T. R. Morton, T. R. Morton, Harrisburg, Harrisburg, Harrisburg, T. O. Bietsch, T. O. Bietsch, T. O. Bietsch, T. O. Bietsch, J. W. Keller, Harrisburg, Harrisburg, Harrisburg, Harrisburg, Harrisburg, T. R. Morton, T. R. Morton, A. W. Bodine,
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ROSTER OF FOREST FIRE WARDENS OF PENNSYLVANIA—Continued.
HUNTINGDON COUNTY—Continued.

Township, Name, Number.	Address.	Telephone through which warden can be reached.			Reports to
		Call.	Exchange.	Company.	
Miller: 75 Howard J. Boop (R), 511 L. Brown Harman,	Huntingdon, Huntingdon No. 2,	C. M. Smith, 902-R-23,	Huntingdon, Huntingdon,	Stone Valley,	T. O. Beltsch. T. R. Morton.
Morris: John J. Kemmler, Mount Union Borough: 422 O. J. Cassidy,	Waterstreet, Mount Union,	39,		Bell,	T. R. Morton. A. W. Bodine.
Oncida: 477 W. P. Musser,	Huntingdon No. 2,	H. H. Oswald,		Raytown, Bell,	T. R. Morton. Harrisburg. Harrisburg.
Penn: 519 Robert A. Norris, 585 Harry B. Moyer,	Grafton, Grafton,	R. A. Norris, R. A. Porter,	Grafton, Alexandria, Huntingdon,	Warriors Ridge, Bell,	T. R. Morton. Harrisburg.
Porter: 707 R. V. Sharp, 430 E. J. Green,	Barree, Alexandria,	911-R-12,	Mount Union, Orbisonia,	Orbisonia, Bell,	Harrisburg. A. W. Bodine. A. W. Bodine. A. W. Bodine. A. W. Bodine.
Shirley: 8 Alfred W. Bodine (F), 499 Samuel J. Erwin, 430 H. S. Myers,	Mount Union No. 1, Valley Point, Shirleysburg,	A. W. Bodine, W. H. Crone, John Shuer, 1-R-4,	Mount Union, Orbisonia, Spruce Creek, Behels & Jeffries, Behel,	Orbisonia, Bell, Orbisonia, Orbisonia,	T. R. Morton. A. W. Bodine. A. W. Bodine. A. W. Bodine.
Springfield: P. Greene, 561 C. P. Greene, 579 Frank Mallory,	Orbisonia, RD., Spruce Creek, Blairs Mills, RD., Shade Valley,	Schultz's Store, H. A. Wisser, H. H. Burdge,	Spruce Creek, Behels & Jeffries, Behel,	Bell, Orbisonia, Orbisonia,	T. R. Morton. A. W. Bodine. A. W. Bodine.
Tell: 416 H. A. Wisser, 435 Harry H. Burdge, Three Springs Borough: 419 E. S. Heeter,	Three Springs, Todd, Trough Creek, Colfax, Mill Creek, Mapleton Depot, Alexandria No. 1,	Public phone at Three Springs, E. N. McNeelins, W. A. Crotsley, 95-R-13, 15-R-5, G. M. Robb,	Public phone at Three Springs, Cassville, Newburg, Huntingdon, Mount Union, Marklesburg,	Bell, Bell, Bell, Woodcock,	Harrisburg. Harrisburg. A. W. Bodine. Harrisburg.

Warriors Mark: 615 C. A. Geist, 838 H. F. Harpster,	Warriors Mark, Warriors Mark No. 2,	3-12, 16-17,	Warriors Mark, Warriors Mark,	Hunt. & Centre, Bell,	T. R. Morton. T. R. Morton.
West: 106 S. H. Lightner (R), 427 G. W. Farsous,	Cottage, Neffs Mills,	Croyle's Store, S. E. Croyle,	Petersburg, Petersburg,		T. R. Morton. T. R. Morton.

INDIANA COUNTY.

Armagh Borough: H. L. Tinkcom,	Armagh,				Harrisburg.
Brushvalley: T. W. Altemus,	Brushvalley,	Exchange,	Brushvalley,	Bell,	Harrisburg. Harrisburg.
Buffington: John M. Barkley,	Dilltown,				Harrisburg.
Burrell: Albert Ferguson,	Blairsville No. 1,				Harrisburg.
Canoe: Cliff McFarland,	Rossiter No. 1,				Harrisburg.
Cherryhill: K. E. Simpson,	Penn Run,				Harrisburg.
Conemaugh: J. P. Kier,	Clarksburg,				Harrisburg.
Creekside Borough: M. L. Carnahan, East Wheatfield: H. W. Griffith,	Creekside,				Harrisburg.
Glen Campbell Borough: H. Barkey,	Cramer,	H. W. Griffith,	Seward,		Harrisburg.
Grant: Geo. H. Jeffries,	Glen Campbell,				Harrisburg.
Green: J. B. Reed, D. P. McDannell, Homer City Borough: E. B. Griffith,	Love Joy, Cherrytree No. 2,	J. B. Reed, Asaph McNulty,	Clymer or Indiana, Cherrytree,	Farmers' Line, Farmers' Line,	Harrisburg. Harrisburg. Harrisburg.
Mahoning (East): J. H. North,	Homer City,				Harrisburg.
Montgomery: John E. Rufner,	Marion Center,	J. H. North,	Bell,	Farmers' Tel. Co.,	Harrisburg.
Rayne: W. H. Buchanan,	Arcadia,				Harrisburg.
Saltsburg Borough: Robert J. Irvin,	Home, No. 2,	W. H. Buchanan,	Indiana,	Hunt. & Clearfield,	Harrisburg.
South Mahoning: N. Sennott,	Saltsburg,				Harrisburg.
West Wheatfield: Thomas Gamble, A. P. Clark,	Plumville, Robinson, Blacklick, No. 1,	Home and Office, John H. Bowser,	Bell, Bolivar,	Farmers', Bell,	Harrisburg. Harrisburg.
Young: H. B. Fulton,	West Lebanon,				Harrisburg.

ROSTER OF FOREST FIRE WARDENS OF PENNSYLVANIA—Continued.

JEFFERSON COUNTY

Township, Name, Number.	Address.	Telephone through which warden can be reached.			Reports to
		Call.	Exchange.	Company.	
Barnett: John Cook,	Cooksburg,	John Cook, .....	.....	Redbank,	Harrisburg.
Eldred: J. B. Park,	Sigel, .....	.....	.....	.....	Harrisburg.
Gaskill: R. N. Calhoun,	Big Run, No. 2, .....	.....	.....	.....	Harrisburg.
Heath: James Silvis,	Sigel No. 1,	James Silvis, .....	.....	Redbank,	Harrisburg.
McCaumont: W. D. Wachob,	Punxsutawney, No. 1,	W. D. Wachob,	Summerville,	Farmers',	Harrisburg.
Oliver: M. I. Kunselman,	Coolspring, .....	.....	.....	.....	Harrisburg.
Washington: Wm. McDonald,	Falls Creek, No. 1, .....	.....	.....	.....	Harrisburg.
Winslow: Wm. T. Cox,	Sandy Valley,	W. T. Cox,	Reynoldsville,	Summerville,	Harrisburg.

JUNIATA COUNTY

Beale: 761 H. A. Brittain,	Mifflin, .....	.....	.....	.....	A. W. Bodine.
Fayette: Benj. F. Trego,	McAllisterville No. 1, .....	.....	.....	.....	D. K. Warfield.
Fermanagh: C. Shellenberger, 659 O. C. Suloff,	Mifflintown,	C. C. Shellenberger,	Mifflintown,	Lost Creek,	D. K. Warfield.
Greenwood: 790 John L. Gelnett,	Millerstown, No. 3,	S. Seven Stars,	Millerstown, Millerstown,	Bell,	D. K. Warfield.
Lack: 536 Robert Hamman, 900 Chester D. Hammond, 119 H. A. Appel (R), 440 Carl E. Book, 433 Charles Lauthers,	Blacklog, Blacklog, Blacklog, Blacklog, Ferulack,	Blacklog Post Office, C. E. Cook, Chas. Lauthers, .....	.....	Bell,	A. W. Bodine.
.....	.....	.....	.....	Bell or United, Orbisonia,	A. W. Bodine.
.....	.....	.....	.....	.....	A. W. Bodine.

Mifflintown Borough: L. B. Hawk,	Mifflintown, .....	.....	.....	.....	D. K. Warfield.
Mifflord: 437 C. M. McCahan, 469 J. H. Wetzel,	Mifflin, No. 1,	C. M. McCahan, J. H. Wetzel,	Mifflin & Port Royal, Mifflintown,	United, United,	A. W. Bodine.
Monroe: Lewis Womer,	Richfield, .....	.....	.....	.....	D. K. Warfield.
Patterson Borough: A. L. Eschelman,	Mifflin, .....	.....	.....	.....	A. W. Bodine.
Spruce Hill: 797 John Gilliford,	Spruce Hill,	J. Gilliford,	Port Royal,	Orbisonia,	A. W. Bodine.
Susquehanna: H. C. Klinger,	Liverpool, No. 1,	H. C. Klinger,	Liverpool,	United,	D. K. Warfield.
Tuscarora: 433 C. M. McMeen,	East Waterford No. 2,	C. M. McMeen,	Mifflintown,	Bell,	A. W. Bodine.
Walker: B. F. Caveny,	Mexico, .....	.....	.....	.....	D. K. Warfield.

LACKAWANNA COUNTY.

Archbald Borough: P. F. Gallagher,	Archbald,	111 R., .....	.....	Consolidated,	Harrisburg.
Benton: E. J. Wiedman, John M. Nafus,	Factoryville, No. 2, Fleetville,	John Rink, Fleetville Hotel, 733,	Factoryville, Factoryville, .....	.....	Harrisburg.
Clifton: Albert L. Stanton,	Factoryville, No. 2, .....	.....	.....	.....	Harrisburg.
.....	Gouldsboro,	Exchange, Thornhurst, 15,	Gouldsboro, Gouldsboro, .....	.....	J. L. Strobeck.
Covington: 664 David Smith,	Thornhurst, .....	.....	.....	.....	J. L. Strobeck.
Dunmore Borough: Freeman Larned, Edward E. Earley,	Moscow, No. 3,	W. M. Wagner, 4-6, .....	.....	.....	Harrisburg.
Greenfield: J. F. Kenyon,	123 Bloom St., Dun- more, .....	.....	.....	.....	Harrisburg.
Jefferson: John P. Moore,	Carbondale, .....	.....	.....	.....	Harrisburg.
Laplume Borough: Earl Seamans,	Winners, No. 1,	2 G,	Hamlin,	Faupack,	Harrisburg.
Lehigh: 89 Dr. W. L. Kauffman (R), 665 Ammi L. Larn,	Factoryville, .....	.....	.....	.....	Harrisburg.
Madison: 589 Charles A. Hessler,	Thornhurst,	Larning Harvey, Thornhurst, 6-6,	Wilkes-Barre, .....	.....	J. L. Strobeck.
Newton: Charles W. Noack,	Moscow,	Telegraph Office,	Moscow, .....	.....	J. L. Strobeck.
J. L. Drake,	Baldmount, .....	.....	.....	.....	Harrisburg.

ROSTER OF FOREST FIRE WARDENS OF PENNSYLVANIA—Continued.
LACKAWANNA COUNTY—Continued.

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Township, Name, Number.	Address.	Telephone through which warden can be reached.			Reports to
		Call.	Exchange.	Company.	
North Abington:					
W. B. Aylsworth,	Dalton, No. 3,				Harrisburg.
Ransom:					
Hervey J. Beagle,	Taylor, R. D.,	Francis R. Coyne, ..			Harrisburg.
Roaring Brook:					
Conrad Riehl,	Elmhurst,				Harrisburg.
South Abington:					
Win. C. Hall,	Chinchilla,				Harrisburg.
Spring Brook:					
663 J. W. Haines,	Moscow No. 3,	6-R-25,	Moscow,	Rural,	J. L. Strobeck.
West Abington:					
Elmer J. Peet,	Dalton, No. 2,				Harrisburg.

LANCASTER COUNTY

Bart:	Bart,	Bart Post Office, ..				Harrisburg.
Caernarvon:	Churchtown,					Harrisburg.
Colerain:	Colerain,					Harrisburg.
Conestoga:	Conestoga,					Harrisburg.
Drumore:	Chestnut Level,	102,	Hensel,			Harrisburg.
Earl:	New Holland,	731 C,	New Holland,	Enterprise,		Harrisburg.
East Earl:	Blue Ball,					Harrisburg.
Eden:	Quarryville, No. 1, ..	374,	Quarryville,			Harrisburg.
Elizabeth:	Brickerville,	75-2,	Lititz,			Harrisburg.
Charles G. Enck,		30 L,	Lititz,	Independent,		Harrisburg.

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Manheim:	Landis Valley,	1913 J,	Lancaster,	United,		Harrisburg.
Geo. D. Landis,						Harrisburg.
Martic:	Marticville,					Harrisburg.
Edward Esbleman,						Harrisburg.
Mount Joy:	Elizabethtown, No. 2, ..					Harrisburg.
W. B. Hamilton,						Harrisburg.
Paradise:	Paradise,					Harrisburg.
John L. Miller,						Harrisburg.
Penn:	Mount Hope,					Harrisburg.
John H. Boyer,						Harrisburg.
Pequea:	Willow Street, No. 1, ..	1913 H,	Lancaster,	United,		Harrisburg.
S. M. Mylin,						Harrisburg.
Providence:	Smithville,	O. E. Martin,	Smithville,			Harrisburg.
Henry Martin,						Harrisburg.
Rapho:	Mount Joy,					Harrisburg.
W. H. Strickler,						Harrisburg.
Salisbury:	Salisbury,	829 Q,	New Holland,	Enterprise,		Harrisburg.
Park J. Blair,						Harrisburg.
West Cocalico:	Schoeneck,					Harrisburg.
J. R. Shirk,						Harrisburg.
West Donegal:	Elizabethtown, No. 1, ..	H. B. Keller, 117-11, ..	Elizabethtown,			Harrisburg.
Jacob S. Dovel,						Harrisburg.
West Earl:	Talmage,					Harrisburg.
B. S. Rupp,						Harrisburg.
West Hempfield:	Mountville,					Harrisburg.
C. G. Garber,						Harrisburg.

LAWRENCE COUNTY.

Big Beaver:	New Galilee, No. 3,					Harrisburg.
Stephen Brown,						Harrisburg.
Neshannock:	New Castle, No. 5,					Harrisburg.
Orien C. Stimple,						Harrisburg.
Flamingrove:	Volant, R. D.,					Harrisburg.
John Montgomery,						Harrisburg.
Pulaski:	Pulaski,					Harrisburg.
John H. Foreman,						Harrisburg.
Shenango:	New Castle, No. 7,					Harrisburg.
T. T. Kennedy,						Harrisburg.
Taylor:	New Castle, No. 7,	991-3,				Harrisburg.
John R. Wright,						Harrisburg.
Wilmington:	Volant, No. 3,					Harrisburg.
W. M. Boyd,						Harrisburg.

ROSTER OF FOREST FIRE WARDENS OF PENNSYLVANIA—Continued
LEBANON COUNTY.

Township, Name, Number.	Address.	Telephone through which warden can be reached.			Reports to
		Call.	Exchange.	Company.	
Bethel: Jacob E. Beheny,	Fredericksburg, .....	.....	.....	.....	Harrisburg.
Cornwall: William Nelson,	Cornwall,	Cornwall Ore Bank,	Lebanon,	Both Phones,	Harrisburg.
Heidelberg: I. Horst,	Shaffersburg, .....	.....	.....	.....	Harrisburg.
Jackson: Andrew H. Spannuth,	Myerstown, No. 1, .....	.....	.....	.....	Harrisburg.
North Cornwall: Jacob S. Kreider,	Lebanon, No. 4, .....	.....	.....	.....	Harrisburg.
Swatara: Levi S. Moyer,	Jonestown, No. 1,	298,	Frystown,	Bethel & Mt. Aetna,	Harrisburg.
Union: Henry L. Felty,	Suedberg, No. 1,	Elmer Fake, 19-R-2,	Lebanon,	Bell,	Harrisburg.
..... Henry Kreiser,	Onset, No. 1, .....	.....	.....	.....	Harrisburg.
..... Morris Kohr,	Onset, .....	.....	.....	.....	Harrisburg.
..... Gymus R. Felty,	Suedberg, .....	.....	.....	.....	Harrisburg.
West Cornwall: Fred McMann,	Elsmareck,	33-R-13,	Lebanon,	Bell,	Harrisburg.
West Lebanon: Thomas H. Clark,	Lebanon,				Harrisburg.

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LEHIGH COUNTY.

Catasauqua Borough: George W. Young,	Catasauqua,	Edgar Bros. Restaurant,			Harrisburg.
Coopersburg Borough: C. H. Jordan,	Coopersburg, .....	.....	.....	.....	Harrisburg.
..... Russell Kern,	Coopersburg, .....	.....	.....	.....	Harrisburg.
Fountain Hill Borough: Harry W. Wachter,	South Bethlehem, .....	.....	.....	.....	Harrisburg.
Heidelberg: Samuel J. Hefftrayer,	Sagersville, .....	.....	.....	.....	Harrisburg.

Lower Milford: Ellwood F. Dietz,	Coopersburg, No. 2, .....	.....	.....	.....	Harrisburg.
..... Amanders Y. Schute,	Zionsville, No. 1, .....	.....	.....	.....	Harrisburg.
Lowhill: Wm. F. Frey,	New Tripoli, No. 2,	24-4, .....	.....	Lehigh or Consolidated,	Harrisburg.
Lynn: Geo. H. Rabert,	New Tripoli,	5-G,	Tripoli,	Consolidated,	Harrisburg.
North Whitehall: B. J. Schlosser,	Schneeksville, .....	.....	.....	.....	Harrisburg.
Salisbury: 84 R. G. Ludwig,	Allentown,	870,	Allentown,	Bell,	J. E. McNeal.
..... Bernard Scharles,	Allentown,	Frank Wagner,	Allentown, .....	.....	Harrisburg.
South Whitehall: Alfred J. Sittler,	Allentown, No. 6, .....	.....	.....	.....	Harrisburg.
Upper Mauncie: H. C. Gernert,	Breinigsville, .....	.....	.....	.....	Harrisburg.
..... S. F. Gehringer,	Fogelsville, .....	.....	.....	.....	Harrisburg.
Upper Milford: Henry B. Geissinger,	Zionsville, .....	.....	.....	.....	Harrisburg.
Upper Saucon: Joseph J. Mory,	South Bethlehem No. 1, .....	.....	.....	.....	Harrisburg.
..... Frank Wagner,	Allentown, No. 2, .....	.....	.....	.....	Harrisburg.
Washington: John Dorward,	Stateale,	Shentons Store or E. Gross Bakery,	Slatington,	Lehigh,	Harrisburg.
Wellsberg: C. H. Kramlich,	Breinigsville, No. 2,	Kutztown,	New Smithville,		Harrisburg.
Whitehall: James Leiby,	Siles,				Harrisburg.

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LUZERNE COUNTY.

Bear Creek: A. F. Bond,	Bear Creek,	10-4, 10-5, or 10-3, ..			Harrisburg.
Black Creek: L. W. Crouse,	Mountain Grove,			Bell,	Harrisburg.
Buck: William Dutter,	Thornhurst, .....	.....	.....	.....	J. L. Strobeck.
..... Edward R. Stull,	Stoddardsville, .....	.....	.....	.....	Harrisburg.
Denison: G. L. Barry,	White Haven,	Ice Lake Hotel,	White Haven, .....	.....	J. L. Strobeck.
..... Conrad Stein,	Wapwallopen, No. 3,	John Stein or Jacob Stein,	Wapwallopen, .....	.....	Harrisburg.
..... Elmer E. Eckrote,	Wapwallopen, No. 2,	John Heller, 117,	Wapwallopen, .....	.....	Harrisburg.
..... John Kanaske, Jr.,	Mountaintop, No. 1, .....	.....	Wapwallopen, .....	.....	Harrisburg.

ROSTER OF FOREST FIRE WARDENS OF PENNSYLVANIA—Continued.
LUZERNE COUNTY—Continued.

Township, Name, Number.	Address.	Telephone through which warden can be reached.			Reports to
		Call.	Exchange.	Company.	
Duryea Borough: Harry Frost,	Duryea, .....	.....	.....	.....	Harrisburg.
Fairmount: Walter Blaine,	Broadway, No. 1, ..	2516,	Huntingdon Mills, ..	Bell,	Harrisburg.
Chas. W. Dohi,	Broadway, R. D., ..	3-162,	Huntingdon Mills, ..	Bell,	Harrisburg.
Fairview: Richard I. Conety,	Glen Summit Springs,	13-3,	Glen Summit Springs,	Bell,	Harrisburg.
Foster: James Brislin,	Upper Lehigh, .....	.....	.....	.....	Harrisburg.
Franklin: Arthur Lewis,	Wyoming, No. 3, ..	112-14,	Dallas,	Commonwealth,	Harrisburg.
Freeland Borough: O. D. Fowier,	Drifton, .....	.....	.....	.....	Harrisburg.
Hazle: William Wolfe,	682 Alter St., Hazle- ton.	Locust St. School, ..	.....	Consolidated,	Harrisburg.
Jackson: C. W. Ehret,	Trucksville, No. 1, ..	102-17,	Dallas,	Commonwealth,	Harrisburg.
Lake: F. A. Kocher,	Alderson, No. 1, ..	R. P. Kocher,	Dallas,	Bell,	Harrisburg.
Laurel Run Borough: Geo. W. Bower,	976 E. Northampton St., Wilkes-Barre,	T. B. Harris,	Wilkes-Barre,	Bell,	Harrisburg.
Lehman: Hiram Craft,	Lehman,	170-4 (Store at Leh- man).	Dallas,	Bell,	Harrisburg.
Luzerne Borough: Edwin W. Abbott,	Luzerne (20 Main St.)	Payne & Perrin,	Luzerne, .....	.....	Harrisburg.
Nuangola Borough: Foster Storm,	Nuangola,	119-3,	Wapwallopen,	Bell,	Harrisburg.
Plymouth: Alfred Warman,	Plymouth, .....	.....	.....	.....	Harrisburg.
Salem: Geo. B. Robbins,	Shickshinny,	21-61,	Shickshinny,	Farmers',	Harrisburg.
Sugarloaf: Angelo Lucki,	Conyngham, R. D., ..	.....	Hazleton,	Both Phones,	Harrisburg.
Freas E. Klinger,	Sugarloaf, No. 1, ..	.....	.....	.....	Harrisburg.
Union: D. J. Sorber,	Shickshinny, No. 1,	Roy Martin,	Shickshinny,		Harrisburg.
Joseph E. Belles,	Shickshinny, No. 1,	R. J. Martin,	Shickshinny,		Harrisburg.

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West Hazleton Borough:
Elmer E. Alrey,
White Haven Borough:
Charles E. Waller,
Wright:
Herbert Williams,

Hazleton, .....	.....	.....	.....	.....	Harrisburg.
White Haven, .....	.....	.....	.....	.....	Harrisburg.
Glen Summit Springs, ..	.....	.....	.....	.....	Harrisburg.

LYCOMING COUNTY.

Armstrong: Albert P. Decker,	DuBoistown, R. D., ..	25-Z,	.....	.....	C. E. Baer.
Brady: 108 Joseph Manley (R), ..	Montgomery, No. 2,	J. Manley,	Maple Hill,	United (White Deer), ..	C. E. Baer.
Brown: 40 Howard H. Morgan, ..	Slate Run,	H. H. Morgan,	Germania (Bell), ..	State Line,	Harrisburg.
142 C. D. Will (R),	Slate Run,	H. H. Morgan,	Germania (Bell), ..	State Line,	H. H. Morgan.
150 Frank Chandlee (R), ..	Slate Run,	H. H. Morgan,	Germania (Bell), ..	State Line,	H. H. Morgan.
339 Benj. T. Gamble,	Cedar Run,	Cedar Run,	Germania (Bell), ..	State Line,	T. C. Harbeson.
340 Tico. H. Hoffman,	Cedar Run,	Cedar Run,	Germania (Bell), ..	State Line,	T. C. Harbeson.
798 Sylvester G. Tome,	Slate Run,	B. T. Wolfe,	Germania (Bell), ..	State Line,	R. R. Neefe.
Cascade: Willard Moyer,	Bodines,	W. Moyer,	Trout Run,	Ralston,	A. B. Wells.
Cogan House: 363 Ralph W. Hopkins,	Brookside,	Lewis Falve,	Brookside,	Bell,	R. M. Neefe.
Cummings: 45 Robert R. Neefe (F), ..	Waterville,	R. R. Neefe,	Brookside,	Bell,	Harrisburg.
Eldred: 121 George H. Pidcoe (R), ..	Williamsport, No. 1,	R. R. Neefe,	Williamsport,	Loyalsock,	J. A. Bastian.
266 Peter W. Kline,	Hepburnville, No. 1,	9-R-4,	Warrenville,	Blooming Grove (Bell)	J. A. Bastian.
Joseph Weinman,	Hepburnville, .....	.....	.....	.....	J. A. Bastian.
Fairfield: 370 Clyde C. Persun,	Montoursville,	28-G,	Montoursville,	United,	J. A. Bastian.
371 James Keebler,	Montoursville,	59-P,	Montoursville,	Loyalsock,	J. A. Bastian.
369 Harry P. Keyte,	Montoursville,	3-L,	Montoursville,	Loyalsock,	J. A. Bastian.
Franklin: 898 J. D. Linger,	Lairdsville,	L. Budman, .....	.....	.....	J. A. Bastian.
Gamble: 365 William Finicle,	Loyalsock,	39-R,	Montoursville,	United,	J. A. Bastian.
318 J. T. Eddy,	Trout Run,	5-A-4,	Warrenville,	Bell,	A. B. Wells.
317 John W. Ely,	Calvert,	5-R-32,	Warrenville,	Bell,	A. B. Wells.
Hepburn: Clarence Losch,	Cogan Station, .....	.....	.....	.....	A. B. Wells.
Jackson: W. D. Miftifer,	Buttonwood, .....	.....	.....	.....	R. R. Neefe.
Jordan: 397 Thomas Flester,	Unityville,	J. E. Whitmer,	Unityville,	Bell,	J. A. Bastian.
Lewis: 40 Arthur R. Wells (F)	Fields Station,	Elisha Strouble,	Trout Run,	Ralston,	Harrisburg.
330 Willard W. Wells,	Trout Run,	W. W. Wells,	Trout Run,	Ralston,	A. B. Wells.
332 L. T. Newnan,	Fields Station,	Elisha Strouble,	Trout Run,	Ralston,	A. B. Wells.

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ROSTER OF FOREST FIRE WARDENS OF PENNSYLVANIA—Continued.

LYCOMING COUNTY—Continued.

Township, Name, Number.	Address.	Telephone through which warden can be reached.			Reports to
		Call.	Exchange.	Company.	
Limestone: 321 M. O. Welshans,	Jersey Shore, No. 4,	2031,	Ortola,	United,	H. S. Metzger.
Loyalsock: 357 W. H. Casselberry,	Williamsport, No. 1, .....	.....	.....	.....	J. A. Bastian.
Lycoming: Matthew Dapp,	Cogan Station, .....	.....	.....	.....	A. B. Wells.
McHenry: 102 Samuel H. Lebo (R),	Laculus,	R. R. Neefe,	Brookside,	Bell,	R. R. Neefe.
79 O. M. Campbell (R),	Cammal,	R. R. Neefe,	Brookside,	Bell,	R. R. Neefe.
360 Silas Hostrander,	Okome,	S. Hostrander,	Brookside,	Bell,	R. R. Neefe.
McIntyre: 540 E. W. Reed,	Ralston,	Lycoming House,	Trouts Run,	Bell,	A. B. Wells.
784 David Chapman,	Fields,	Elisha Strouble, .....	.....	Ralston,	A. B. Wells.
McNett: 330 Charles A. Miller,	Leolyn,	O. S. Roby,	Canton, .....	.....	A. B. Wells.
Miffin: 362 W. V. Gohl,	Jersey Shore,	2-E,	Jersey Shore,	S. & L.,	R. R. Neefe.
Mill Creek: 107 George M. Lipp (R),	Montoursville, No. 1,	41-E,	Montoursville,	Loyalsock,	J. A. Bastian.
351 Charles E. Reeder,	Muncy, No. 2,	Edward Burns, .....	.....	Loyalsock,	J. A. Bastian.
Charles W. Hill,	Muncy, .....	.....	.....	.....	C. E. Baer.
Montgomery Borough: J. R. Staib,	Montgomery, .....	.....	.....	.....	C. E. Baer.
E. K. Sollenberger,	Montgomery, .....	.....	.....	.....	C. E. Baer.
Thomas H. Smith,	Montgomery, .....	.....	.....	.....	J. A. Bastian.
Muncy Creek: 795 W. Frank Bitler,	Muncy, No. 4,	W. F. Bitler,	Hughesville,	Muncy Creek,	J. A. Bastian.
Muncy: 753 Walter Gray,	Muncy, No. 2,	33-9,	Muncy,	Bell,	J. A. Bastian.
Penn: Stephen Kepner,	Mawr Glen, No. 1, .....	.....	.....	.....	J. A. Bastian.
Platt: N. M. Brown,	Larryville, .....	.....	.....	.....	R. R. Neefe.
736 C. A. Reading,	Larrys Creek,	6-E,	Jersey Shore,	Commercial,	R. R. Neefe.
Pine: 126 L. W. Rogers (R),	Waterville,	L. W. Rogers,	Jersey Shore,	Brookside,	R. R. Neefe.
540 S. P. Schneider,	Lloyd,	S. P. Schneider,	Morris,	Oregon Hill,	T. C. Harbeson.
Plunketts Creek: 5 John A. Bastian (F),	Loyalsock,	32-F,	Montoursville,	Loyalsock,	Harrisburg.
363 T. B. Emick,	Barbours,	M. J. Fetterman,	Barbours,	United,	J. A. Bastian.

Shrewsbury: 316 J. W. Flester,	Tivoli,	John Boyer, .....	.....	Muncy Creek,	J. A. Bastian.
Susquehanna: W. A. Simpson,	Nisbet, .....	.....	.....	.....	C. E. Baer.
Upper Fairfield: 373 Frank Reiser,	Montoursville, R. D.,	3-F,	Montoursville,	Loyalsock,	J. A. Bastian.
372 F. E. Evans,	Montoursville, No. 3,	42-H,	Montoursville,	United,	J. A. Bastian.
Washington: 9 Charles E. Baer (F),	Elmsport,	C. L. Buss,	Maple Hill,	White Deer (United),	Harrisburg.
712 C. L. Buss,	Montgomery, No. 2, .....	.....	Maple Hill,	United,	C. E. Baer.
Watson: 21 Reuben Harer,	Jersey Shore, No. 1,	J. Ira Brown,	Avis,	Commercial,	R. R. Neefe.
Wolf: Ransom Plotts,	Muncy, No. 2, .....	.....	.....	.....	J. A. Bastian.
Woodward: Marshall Updegraff,	Linden, No. 3, .....	.....	.....	.....	A. B. Wells.

McKEAN COUNTY.

Bradford: 541 E. H. Bryner,	Custer City,	1121-R-12,	Bradford,	Bell,	R. L. Emerick.
A. Keery,	Custer City, .....	.....	.....	.....	Coudersport.
R. D. Robinson,	Custer City, .....	.....	.....	.....	R. L. Emerick.
J. H. Johnson,	Bradford, No. 1,	209-R-4, .....	.....	Bell,	R. L. Emerick.
Ceres: 103 F. B. King,	Ceres, N. Y.,	3-F-4,	Shinglehouse,	Bell,	R. L. Emerick.
Corydon: Wm. Holsinger,	Stickney, .....	.....	.....	.....	R. L. Emerick.
762 C. H. Cobb,	Stickney, .....	.....	.....	.....	R. L. Emerick.
Eldred Borough: J. E. Clement,	Eldred,	F. M. Wright,	Eldred, .....	.....	R. L. Emerick.
Eldred: J. W. Ellis,	Eldred, .....	.....	.....	.....	R. L. Emerick.
Foster: C. W. Remington,	Bradford, R. D., .....	.....	.....	.....	R. L. Emerick.
Ernest Caswell,	Derrick City, .....	.....	.....	.....	R. L. Emerick.
Thomas T. Fox,	Bradford, .....	.....	.....	.....	R. L. Emerick.
Hamilton: Oscar Thunberg,	Ludlow,	Ludlow Post Office, .....	.....	.....	R. L. Emerick.
Hamlin: W. C. Blair,	Kane, .....	.....	.....	.....	R. L. Emerick.
Wm. Swanson,	Smethport, No. 4, .....	.....	.....	.....	R. L. Emerick.
Kane Borough: Wm. O'Connor,	Kane, .....	.....	.....	.....	R. L. Emerick.
Thomas L. Kane,	Kane, .....	.....	.....	.....	R. L. Emerick.
Keating: W. E. Wilson,	Cyclone,	25-R-5,	Bradford,	Bell,	R. L. Emerick.
A. G. Farley,	Smethport, No. 3,	J. W. Reed,	Farmers Valley, .....	.....	R. L. Emerick.
D. M. Cooper,	Backus, .....	.....	.....	.....	R. L. Emerick.
W. W. Willoughby,	Gifford,	26-R-6,	Bradford, .....	.....	R. L. Emerick.

Township, Number, Name.	Address.	Telephone Through Which Warden Can Be Reached.			Reports to.
		Call.	Exchange.	Company.	
Lafayette: 721 E. W. Penfield.	Lewis Run, R. D.,	100-R-1-3.	Bradford,	Bell,	R. L. Emerick.
Otto: Thomas H. Givan,	Rixford,	Exchange,		Bell,	R. L. Emerick.
Port Allegany Borough: Frank D. Simar,	Port Allegany,				R. L. Emerick.
Smethport Borough: 760 F. D. Cummings.	Smethport,	F. D. Cummings,		Bell,	R. L. Emerick.

MERCER COUNTY.

Deer Creek:	Clarks Mills,				Harrisburg.
Ira Condit,	Greenville, No. 45,				Harrisburg.
Delaware:					Harrisburg.
H. S. Stoyer,	Fredonia,				Harrisburg.
Fairview:					Harrisburg.
J. E. Maskrey,	Sandy Lake, No. 25,			Cochran,	Harrisburg.
French Creek:	147-13,				Harrisburg.
J. M. Spencer,	New Wilmington, No.				Harrisburg.
Lackawannock:	63,				Harrisburg.
D. F. Larimer,					Harrisburg.
Liberty:	Grove City, No. 12,				Harrisburg.
K. L. Buxton,	Transfer,				Harrisburg.
Pymatuning:	Lyman Carrier,			Pymatuning Ind.,	Harrisburg.
Lyman Carrier,					Harrisburg.
Sandy Creek:	Clarks Mills, No. 31,				Harrisburg.
Melvin Marsteller,					Harrisburg.
Sandy Lake:	Sandy Lake,			Mercer or Bell,	Harrisburg.
J. A. Bond,				Union,	Harrisburg.
Shenango:	West Middlesex, No.				Harrisburg.
D. W. Sweesy,	61,				Harrisburg.
Sugar Grove:	Kennard,			Kennard,	Harrisburg.
C. S. Hazen,	8-3,				Harrisburg.

West Salem:				
A. H. Burnett,	Greenville,			Harrisburg.
Wolfcreek:				
Wm. W. Wible,	Grove City, No. 15,			Harrisburg.

MIFFLIN COUNTY.

Armagh:	59 D. Kerr Warfield (F), 145 Wm. Wirth (R), 83 H. J. Dean (R), 629 J. A. Esb, 633 Clay W. Bigelow (R),	Milroy, Milroy, Milroy, R. D., Milroy, R. D., Milroy, No. 1,	4-12, 37-13, 7-2, 37-1,	Ner Thompson & Son, 	Reedsville, Reedsville, Reedsville, Reedsville,	Bell, Bell, Bell, Bell,	Harrisburg. D. K. Warfield. D. K. Warfield. D. K. Warfield.
Bratton:	474 J. K. Sheerer, 475 T. A. Morrow, 636 Raymond Kaufman,	Mattawanna, Mattawanna, Mattawanna,	14, E. M. Harsberger, R. E. Kaufman,	McVeytown, McVeytown,	McVeytown, McVeytown,	Bell (Mattawanna), Bell (Mattawanna),	A. W. Bodine. A. W. Bodine. A. W. Bodine.
Brown:	115 John C. Monsell (R), 582 Grover C. Rhoades, John Marker,	Belleville, R. D., Reedsville, Reedsville,	C. G. Milliken, J. B. Swint,	Reedsville, Reedsville,	Reedsville, Reedsville,	Bell, 	T. O. Bietsch. D. K. Warfield.
Decatur:	597 W. J. Kemberling,	Wagner,	J. H. Knepp,	Lewistown,	Lewistown,	Commercial,	D. K. Warfield.
Derry:	478 E. L. Mertiz, 554 W. C. Bell,	Yeagertown, Lewistown,	Geo. P. Musser, W. C. Bell,	Lewistown, Lewistown,	Lewistown, Lewistown,	Bell, United,	D. K. Warfield. D. K. Warfield.
Granville:	149 R. E. McCoy (R), 470 John A. Shahan, 476 W. I. Price, 637 Wm. L. Ruble, 709 S. L. Baltzer,	Granville, Lewistown, No. 1, Granville, Lewistown, Mifflin, Box 108,	20-27, 22-27, Walter Aurand, S. L. Baltzer,	McVeytown, McVeytown, McVeytown, McVeytown,	McVeytown, McVeytown, Mifflintown and P. R. R.	Bell (Ferguson Valley). Bell, United, P. R. R. phone,	A. W. Bodine. A. W. Bodine. A. W. Bodine. D. K. Warfield.
Menno:	683 Frank Hough, 771 S. M. Page,	Lewistown, Mifflin,	P. R. R., S. M. Page,	Lewistown, Mifflintown and P. R. R.	Lewistown, Mifflintown and P. R. R.	P. R. R. phone, 	A. W. Bodine. A. W. Bodine.
Menno:	754 Menno H. Yoder,	Allensville,	142,	McVeytown, McVeytown,	McVeytown, McVeytown,	Bell, 	T. O. Bietsch.
Oliver:	471 D. F. Kirk, 472 D. Corbin Rupert,	McVeytown, McVeytown,	21-2, 22-27,	McVeytown, McVeytown,	McVeytown, McVeytown,	Bell, Farmers Line,	A. W. Bodine. A. W. Bodine.
Union:	308 Jacob S. Fultz,	Belleville,	J. S. Fultz,	Belleville,	Belleville,	Farmers Line,	T. O. Bietsch.
Wayne:	537 O. M. Sechrist, 473 A. D. Wharton,	Newton Hamilton, Newton Hamilton,	Kinslow's Store, 26-11,	McVeytown,	McVeytown,	Bell, Bell,	A. W. Bodine. A. W. Bodine.

MONTOUR COUNTY—Continued.

NORTHAMPTON COUNTY.

Upper Mt. Bethel: Bangor No. 3, 93 Clarton Portland, 854 Samuel J. Cooper, Walnutport Borough: Alfred J. Andrews, E. E. Vogel, Washington: Freeman Brodt, Ackermanville,	32-R, 66-4,	Richmond, Slatington, Walnutport, Ackermanville,	Mt. Bethel, Bell, Harrisburg, Harrisburg, Harrisburg,	J. L. Strobeck, J. L. Strobeck, Harrisburg, Harrisburg, Harrisburg,
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NORTHUMBERLAND COUNTY.

Coal:	Geo. H. Brady,	Shamokin No. 2,				Harrisburg.
	John H. Strausser,	Shamokin,				Harrisburg.
	Geo. S. Miller,	Shamokin, .....	.....	.....	.....	Harrisburg.
East	Chillisquaque:	.....	.....	.....	.....	Harrisburg.
	John L. Voris,	Pottsgrove, .....	.....	.....	.....	Harrisburg.
Jordan:	W. R. Schadel,	Pillow No. 1,	A. J. Schwahn, 12-4-B,	Klingerstown,	M. M. Co.,	Harrisburg.
Lower	Augusta:	.....	.....	.....	.....	Harrisburg.
	Henry C. Dewitt,	Fishers Ferry,	927-3,	Sunbury,	Bell,	Harrisburg.
	Harry E. Phillips,	Fishers Ferry,	917-2,	Sunbury,	Bell,	Harrisburg.
Lower	Maahanoy:	.....	.....	.....	.....	Harrisburg.
	J. W. Bettleyon,	Dalmatia, .....	.....	.....	.....	Harrisburg.
Marion	Heights Borough:	.....	.....	.....	.....	Harrisburg.
	Victor Merretta,	Kaiser, .....	.....	.....	.....	Harrisburg.
Rush:	Joseph M. Cherry,	Danville No. 6, .....	.....	.....	.....	Harrisburg.
Shamokin	Borough:	.....	.....	.....	.....	Harrisburg.
	Reuben Kelsor,	Shamokin, .....	.....	.....	.....	Harrisburg.
Shamokin:	A. H. Swank,	Paxinos No. 1,	2-22,	Seven Points,	United,	Harrisburg.
Snyder	town Borough:	.....	.....	.....	.....	Harrisburg.
	Ed. C. Wagner,	Sunbury No. 1,	23-12,	Elysburg,	Bell,	Harrisburg.
Upper	Augusta:	.....	.....	.....	.....	Harrisburg.
	H. C. Forrester,	Sunbury No. 1, .....	.....	.....	.....	Harrisburg.
Upper	Maahanoy:	.....	.....	.....	.....	Harrisburg.
	J. B. Koppenhaver,	Leck Kill, .....	.....	.....	.....	Harrisburg.
Washington:	.....	.....	.....	.....	.....	Harrisburg.
	H. C. Heffelfinger,	Dornsife No. 1,	10-2-B,	Mandata,	M. & M.,	Harrisburg.
Watson	town Borough:	.....	.....	.....	.....	Harrisburg.
	Wm. H. Gold,	Watsonstown,	56-B-2,	Watsonstown,	Bell,	Harrisburg.
West	Chillisquaque:	.....	.....	.....	.....	Harrisburg.
	731 George Heddings,	Milton,	L. Hartman,	Lewisburg,	Bell,	Harrisburg.
Zerbe:	Benj. Machamer,	Trevorton,	B. F. Deppen,	Mandata, .....	.....	Harrisburg.

ROSTER OF FOREST FIRE WARDENS OF PENNSYLVANIA—Continued.
PERRY COUNTY.

Township or Borough, Name.	Address.	Telephone through which warden can be reached.			Reports to
		Call.	Exchange.	Company.	
Blain Borough:	Blain, .....	.....	Blain,	Perry County,	H. E. Bryner.
Buffalo:	377 D. W. Sheaffer,	Shuler's Store,	Liverpool,	United,	H. E. Bryner.
	865 S. I. Rhoads,	Wm. H. Hebel,	Newport,	Pfautz Valley,	H. E. Bryner.
	837 Wm. H. Hebel,	G. B. M. Balr, .....	.....	C. V.,	H. E. Bryner.
	836 G. B. M. Balr,	John Bruner,	Shermansdale,	Perry County,	H. E. Bryner.
Carroll:	James Baxter,	Exchange, .....	.....	Bell,	H. E. Bryner.
	773 Ell D. Sloop,	J. Myers,	Newport,	Bell,	H. E. Bryner.
Center:	776 Jacob Myers,	A. N. Ulsb,	Millerstown, .....	.....	H. E. Bryner.
Greenwood:	841 J. R. Wright,	F. P. Sundy,	Loysville,	Perry County,	H. E. Bryner.
Jackson:	137 F. P. Sundy (R),	J. A. Turnbaugh,	Newport,	Perry County,	H. E. Bryner.
Junata:	856 J. A. Turnbaugh,	Centerville,	Liverpool,	Bell,	H. E. Bryner.
Liverpool:	833 Henry Grubb,	Geo. C. Long,	Liverpool,	Pfautz Valley,	H. E. Bryner.
	839 Geo. C. Long,	G. L. Mumper,	Blain,	Perry County,	H. E. Bryner.
Madison:	432 George L. Mumper,	J. E. Waggoner,	Honey Grove,	Orbisona,	H. E. Bryner.
	442 G. Frank Mohler,	W. C. Smith,	Bloomfield,	Bell,	H. E. Bryner.
	572 M. G. Hench,	R. B. Rodgers,	Loysville,	Bell,	H. E. Bryner.
	468 Amos W. Reed, .....	.....	Saville, .....	.....	H. E. Bryner.
	867 K. P. Smith, .....	.....	Newport,	Bell,	H. E. Bryner.
Miller:	786 Charles O. Honck, .....	.....	.....	.....	H. E. Bryner.
Oliver:	858 D. M. Ehrhart,	Exchange,	Duncannon,	Bell,	H. E. Bryner.
Penn:	780 James E. Nickum,	S. W. Miller,	Duncannon,	Perry County,	H. E. Bryner.
	786 S. W. Miller,	189,	Marysville,	United,	H. E. Bryner.
Rye:	774 A. R. White,	Rice's Store,	Ickesburg, .....	.....	H. E. Bryner.
Saville:	863 Jacob F. Relsinger,	J. A. Snyder,	New Bloomfield,	Bell,	H. E. Bryner.
	731 Jacob A. Snyder, .....	.....	.....	.....	H. E. Bryner.

Spring:	Ellittsburg,	E. C. Dile,	New Bloomfield, ..	Perry County,	H. E. Bryner.
Toboyne:	East Waterford, ..	J. H. Kirk,	Port Royal, .....	.....	Harrisburg.
58 John L. Witherow (F), ..	New Germantown, ..	H. E. Bryner, ..	Loysville,	Perry County, ..	H. E. Bryner.
101 Leroy Koontz (R), ..	New Germantown, ..	H. E. Bryner, ..	.....	.....	H. E. Bryner.
91 Herman N. Hart (R), ..	East Waterford, ..	Phone at Concord, ..	.....	.....	J. L. Witherow.
441 John H. Zeigler,	New Germantown, ..	.....	.....	.....	H. E. Bryner.
31 Walter Leach (F), ..	Millerstown No. 4, ..	Horace Kert,	Millerstown, ..	United,	H. E. Bryner.
Tuscarora:	Millerstown No. 4, ..	Jones' Store, ..	.....	.....	H. E. Bryner.
857 J. G. Hampton,	Millerstown No. 4, ..	Donnelly's Mill, ..	.....	.....	H. E. Bryner.
856 D. M. Hench,	Millerstown No. 4, ..	H. S. Bratton, ..	.....	.....	H. E. Bryner.
Tyrone:	Landisburg No. 1, ..	Hotel Dempsey, ..	Loysville, .....	.....	H. E. Bryner.
598 Harry P. Cornman, ..	Landisburg,	Harvey Clouse, ..	Loysville,	Bell,	H. E. Bryner.
356 B. F. Lightner,	Landisburg,	H. M. Lightner, ..	Loysville,	Perry County, ..	H. E. Bryner.
782 H. M. Lightner,	Duncannon No. 4, ..	Exchange,	Duncannon, ..	United,	H. E. Bryner.
Watts:	Duncannon No. 4, ..	Exchange,	New Buffalo, ..	Local, .....	.....
340 Allen R. Thompson, ..	Duncannon No. 3, ..	Pumping Station, ..	Sulphur Springs, ..	Bell,	H. E. Bryner.
Wheatfield:	.....	.....	.....	.....	.....
783 Chester E. Burd, .....	.....	.....	.....	.....	.....

PIKE COUNTY.

Blooming Grove:	Notch,	47-23,	Hawley,	Lord's Valley, ..	Harrisburg.
2 John E. Avery (F), ..	Lord's Valley,	Robert Pierson, ..	Hawley,	Lord's Valley, ..	J. E. Avery.
53 Wm. Hutton (R), ..	Lord's Valley,	47-11,	Hawley,	Lord's Valley, ..	J. E. Avery.
573 R. S. Lord,	Dingmans Ferry, ..	15-F-2,	Dingmans Ferry, ..	Van Pike,	J. E. Avery.
Delaware:	Dingmans Ferry, ..	A. M. Adams, ..	Dingmans Ferry, ..	Van Pike,	J. E. Avery.
480 Thomas Shepherd, ..	Miller No. 1,	J. W. Kiesel,	Bell,	Van Pike,	J. E. Avery.
563 Earl E. Raitt,	Miller No. 1,	75-F-2,	Bell,	Van Pike,	J. E. Avery.
Dingman:	Miller No. 1,	75-F-21,	Miller,	Van Pike,	J. E. Avery.
481 Julius W. Kiesel, ..	Miller No. 1,	134-3,	Bell,	Van Pike,	J. E. Avery.
483 E. H. Orben,	Canadensis, R. D., ..	R. W. Stadden, ..	Newfoundland, ..	Wynoska,	Harrisburg.
588 Louis J. Husson, ..	Canadensis, R. D., ..	Edgar Wilson, ..	Newfoundland, ..	Wynoska,	R. W. Stadden.
542 Fred Gebhardt,	Greentown,	J. R. Glavin,	Newfoundland, ..	Wynoska,	R. W. Stadden.
Greene:	Panther, .....	.....	.....	.....	.....
53 Robert W. Stadden (F), ..	.....	.....	.....	.....	.....
143 Edgar Wilson (R), ..	.....	.....	.....	.....	.....
485 Thomas H. Glavin, Jr., ..	.....	.....	.....	.....	.....
869 Geo. J. Heberling, .....	.....	.....	.....	.....	.....

ROSTER OF FOREST FIRE WARDENS OF PENNSYLVANIA—Continued.
PIKE COUNTY—Continued.

Township or Borough, Name.	Address.	Telephone through which warden can be reached.			Reports to
		Call.	Exchange.	Company.	
Lackawaxen: 482 C. R. Rosencrance,	Greeley,	42,	Lackawaxen,	L. & H.,	J. E. Avery.
902 Willis L. Simonson,	Masthope,	42-U,	Hawley,	Bell,	R. W. Studden.
Lehman: 412 Warren Stout,	Bushkill,	70-M,	Stroudsburg,	Bell,	J. L. Strobeck.
273 Wm. Mink,	Bushkill,	Exchange,	Forest Park, .....	.....	J. L. Strobeck.
Matamoras Borough: 512 Thomas C. Manwaring,	Matamoras,	Debbart, 474-W,	Matamoras,	Port Jervis,	J. E. Avery.
Milford Borough: 124 E. T. Riviere (R),	Milford,	E. T. Riviere, .....	.....	Van Pike,	J. E. Avery.
506 Daniel B. Olmstead,	Milford,	Crisman House, .....	.....	Van Pike,	J. E. Avery.
Milford: William W. Drake,	Milford,	83-F-4,	Milford,	Van Pike,	J. E. Avery.
Palmyra: 870 Henry T. Gumble,	Paupack,	H. T. Gumble,	Hawley,	Bell,	R. W. Stadden.
Porter: 88 Ferdinand Frank (R),	Edgemere,	33-S-11,	Dingman,	Van Pike,	J. E. Avery.
Shohola: 484 Henry Bradford,	Parkers Glen,	H. Bradford,	Milford,	Van Pike,	J. E. Avery.

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POTTER COUNTY.

Abbott: 58 Harry C. VanHorn (F),	Carter Camp,	H. C. Van Horn,	Germania (Bell),	Elk Run,	R. L. Emerick.
141 Harry VanCleve (R),	Crossfork, R. D.,	H. Van Cleve,	Germania (Bell),	Dept. of Forestry,	H. C. Van Horn.
227 August Bratz,	Crossfork,	A. Bratz,	Germania (Bell),	Elk Run,	R. L. Emerick.
233 J. R. Niklaus,	Germania, .....	.....	.....	.....	R. L. Emerick.
Allegany: 254 A. C. Woodcock,	Raymond, .....	.....	Raymond,	Bell,	R. L. Emerick.
226 Emil Mosch,	Coudersport No. 3,	900-5,	Bell,	Carrier line,	R. L. Emerick.
Austin Borough: 22 P. Hartman Fox (F),	Austin,	6-R,	Austin,	Bell,	R. L. Emerick.

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Bingham: 238 Bert Bacon,	West Bingham,	Central,	West Bingham,	Both phones,	R. L. Emerick.
Clara: 229 Harvey Wakley,	Roulette No. 1,	H. Wakley,	Millport,	Clara,	R. L. Emerick.
230 A. A. Fessenden,	Roulette No. 1,	A. A. Fessenden,	Roulette,	Bell,	R. L. Emerick.
Coudersport Borough: 18 R. Lynn Emerick (F),	Coudersport,	157-R or 164-W,	Coudersport,	Bell,	Harrisburg.
East Fork District of Eulalia: 46 George S. Perry (F),	Conrad,	G. S. Perry,	Germania (Bell),	Dept. of Forestry,	R. L. Emerick.
231 H. W. Robinson,	Conrad,	Hotel at Hull,	Coudersport (?),	Bell,	G. S. Perry.
Eulalia: 232 Milton Moshier,	Coudersport,	905-31,	Coudersport,	Bell,	R. L. Emerick.
234 R. A. Matteson,	Coudersport,	901-12,	Coudersport,	Bell,	R. L. Emerick.
Galeton Borough: 524 Frank D. Leach,	Galeton,	60-J,	Galeton,	Bell,	R. L. Emerick.
Genesee: 233 A. B. Collier,	Ellisburg,	A. B. Collier,	Genesee,	Bell,	R. L. Emerick.
Harrison: 245 J. H. Harrison,	Harison Valley,	Hotel Erway, .....	.....	Bell,	R. L. Emerick.
Hebron: 271 M. A. Harvey,	Coudersport,	900-21,	Coudersport,	Bell,	R. L. Emerick.
861 O. D. Bly,	Coudersport No. 2,	907-5,	Shinglehouse,	Bell,	R. L. Emerick.
Hector: 246 W. G. Mays,	Sunderlinville,	W. G. Mays,	Bell,	Wilkinson,	R. L. Emerick.
247 Ray H. Loucks,	Ulysses No. 2,	R. H. Loucks,	Ulysses or Sunderlinville,	Loucks Mills,	R. L. Emerick.
Homer: 504 Alvin J. Quimby,	Coudersport,	911-33,	Coudersport,	Bell,	P. H. Fox.
248 John Bloomer,	Coudersport,	902-5,	Coudersport,	Bell,	P. H. Fox.
Keating: 249 M. A. Fourness (R),	Coudersport,	17-R-3,	Austin,	Bell,	P. H. Fox.
249 F. H. Hoffmeister,	Keating Summit,	Keating Summit,	Coudersport,	Bell,	P. H. Fox.
251 J. B. Bundy,	Coudersport No. 6,	911-11,	Coudersport,	Bell,	R. L. Emerick.
Sharon: 352 Charles Allen,	Shinglehouse,	60-X,	Shinglehouse,	Federal,	R. L. Emerick.
531 Wm. H. Scoville,	Millport,	Wm. Scoville,	Bell,	Local,	R. L. Emerick.
Oswayo borough: 234 E. E. Bunker,	Oswayo,	E. E. Bunker,	Bell,	Oswayo,	R. L. Emerick.
Oswayo: 235 Charles H. Kemp,	Millport,	C. H. Kemp,	Bell,	Farmers,	R. L. Emerick.
Pike: 236 John H. Page,	Galeton No. 2,	J. H. Page,	Westfield,	Sunderlinville,	R. L. Emerick.
Pleasant Valley: 510 Fred Wambold,	Port Allegany No. 3,	F. F. Wambold,	Burtville,	Bell,	R. L. Emerick.
Portage: 260 Isaac Stuckey,	Keating Summit, R. D.,	P. H. Fox, .....	.....	.....	P. H. Fox.
Roulette: 323 E. E. Ludwig,	Keating Summit,	W. B. Evans,	Emporium,	Bell,	W. B. Evans.
237 Lewis P. Fessenden,	Roulette No. 2,	10-R-5,	Roulette,	Bell,	R. L. Emerick.
Shinglehouse Borough: 233 C. H. Cole,	Shinglehouse,	C. H. Cole,	Shinglehouse,	Federal,	R. L. Emerick.

ROSTER OF FOREST FIRE WARDENS OF PENNSYLVANIA—Continued.
POTTER COUNTY—Continued.

Township or Borough, Name.	Address.	Telephone through which warden can be reached.			Reports to
		Call.	Exchange.	Company.	
Stewardson: 23 Thomas H. Golden (F), 100 Milton Keeney (R), 118 Henry M. Olson (R), 239 Edward Caldwell.	Crossfork, Crossfork, Crossfork, R. D., Crossfork.	T. H. Golden, M. Keeney, H. M. Olson, Jones Hotel.	Germania (Bell), Germania (Bell), Germania (Bell), Germania.	Dept. of Forestry, Dept. of Forestry, Dept. of Forestry, Bell.	R. L. Emerick, T. H. Golden, T. H. Golden, T. H. Golden.
Summit: 71 Arthur W. Ayers (R), 240 Albert O. Baker, 241 Charles P. Ayers.	Costello No. 1, Costello No. 1, Coudersport No. 5.	A. W. Ayers, Mrs. Leroy Haskins, 904-12.	Germania (Bell), Coudersport, Coudersport.	Dept. of Forestry, Farmers line, Bell.	G. S. Perry, G. S. Perry, R. L. Emerick.
Sweden: 243 Charles F. Wells, 242 A. W. Snyder.	Coudersport No. 4, Coudersport No. 3.	9044, 909-11.	Coudersport, Coudersport.	Bell, Bell.	R. L. Emerick, R. L. Emerick.
Sylvania: 255 C. R. Glover, 244 Charles Pierce.	Costello, Costello.	McGee Miller, 1-31.	Costello, Costello.	Bell, Gold.	P. H. Fox, P. H. Fox.
Ulysses: 520 George F. Wright, West Branch: 533 Miles A. Conable.	Gold, Galeton No. 1.	G. F. Wright, F. Burrows.	Gold, Gold.	Gold, Bell.	R. L. Emerick, R. L. Emerick.
Wharton: 253 George A. Mahon, 534 C. E. Brooks.	Wharton, Costello.				R. L. Emerick, G. S. Perry.

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SCHUYLKILL COUNTY.

Ashland Borough: John J. Conner.	Ashland.				J. E. McNeal, 616 Washington St., Reading.
Barry: C. B. Maurer.	Mowry.	Irvin B. Zeigenfuse.		Bell.	J. E. McNeal.
Blythe: Alexander J. Devine.	Cumbola.				J. E. McNeal.

Cass: William W. Watts, Coal Dale Borough: David Yenne, Jr., East Brunswick: David Turner.	Minersville. Coal Dale, New Ringgold.	Oak Hill Coal Co., W. W. Romberger.	Minersville, Pitman.	14-J. Bell.	J. E. McNeal. J. E. McNeal. J. E. McNeal. J. E. McNeal.
East Union: Milton Houser.	Brandonville.				J. E. McNeal.
Eldred: Charles H. Morgan, Gibberton Borough: Thomas L. Bevan.	Pitman, Gilberton.				J. E. McNeal. J. E. McNeal.
Girardville Borough: Harry Toll.	Girardville.				J. E. McNeal.
Hubley: Robert W. Bowman.	Spring Glen.				J. E. McNeal.
Kilne: Frank P. Bruno.	Kelaryes.	55-R-12.	McAdoo.	Bell.	J. E. McNeal.
Landingville Borough: John Maine.	Landingville.				J. E. McNeal.
Mt. Carbon Borough: Frank Erb.	Pottsville.				J. E. McNeal.
Mahanoy City: Samuel C. Samuels.	Mahanoy City.				J. E. McNeal.
Mahanoy: Win. R. Craig.	New Boston.				J. E. McNeal.
Middleport Borough: John Callaway.	Middleport.				J. E. McNeal.
Minersville Borough: Martin Boyer.	Minersville.				J. E. McNeal.
McAdoo Borough: E. W. Klingerman.	McAdoo.	S-11.	Hazleton.	Consolidated & Bell.	J. E. McNeal.
Mahantongo: I. R. Troutman.	Klingers town.	John Leitzel or H. O. Umholtz.	Mandata.	M. & M.	J. E. McNeal.
New Ringgold Borough: D. Vetter.	New Ringgold.				J. E. McNeal.
North Union: Frank Wharmby.	Nuremberg.	Frank Wharmby.	Hazleton & Conyngham.	Bell & Consolidated.	J. E. McNeal.
New Philadelphia Borough: Matthew Fogarty.	Silver Creek.				J. E. McNeal.
Orwigsburg Borough: W. H. H. Moyer.	Orwigsburg.				J. E. McNeal.
Pottsville Borough: Edward Gormley.	Pottsville.				J. E. McNeal.
Rahn: William Valentine.	Tamaqua.				J. E. McNeal.
Reilly: Oscar Kessler.	Zerbe.		Bell.	Bell.	J. E. McNeal.
Ryan: Albert Ellis.	Barnesville, R. D.	20 x 76.	Mahanoy City.	Bell.	J. E. McNeal.
Rush: John F. Brill.	Barnesville.				J. E. McNeal.

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ROSTER OF FOREST FIRE WARDENS OF PENNSYLVANIA—Continued.

SCHUYLKILL COUNTY—Continued.

Township or Borough, Name.	Address.	Telephone through which warden can be reached.			Reports to
		Call.	Exchange.	Company.	
South Manheim: Oliver Wagner,	Schuykill Haven, .....	.....	.....	.....	J. E. McNeal.
St. Clair Borough: 347 Theodore Weiss,	St. Clair, .....	.....	.....	.....	J. E. McNeal.
Shenandoah Borough: Cyrus Geise,	Shenandoah,	A. T. Jenkins,	Pottsville, .....	.....	J. E. McNeal.
Tremont Borough: Fred Hopstetter,	Tremont, .....	.....	.....	.....	J. E. McNeal.
Union: John P. Shoup,	Ringtown No. 1,	John P. Shoup,	Ringtown,	Farmers Independent,	J. E. McNeal.
Walker: Samuel Heister,	Tamaqua No. 1, .....	.....	.....	.....	J. E. McNeal.
Wayne: Harry N. Dietrich,	Cressona No. 2,	722,	Deturksville,	Bell,	J. E. McNeal.
West Brunswick: Frank Koenig,	Orwigsburg No. 2, .....	.....	Auburn,	Bell,	J. E. McNeal.
West Mahanoy: Thomas May,	Shaft,	Depuw Store, .....	.....	.....	J. E. McNeal.
William Hefner,	Girardville,	Girard Estate Office, .....	.....	Bell & Schuykill,	J. E. McNeal.

SNYDER COUNTY.

Adams: 4 Walter J. Bartschat (F),	Troxelville,	7-U,	Beaver Springs,	C. V.,	Harrisburg.
27 Jesse M. Houtz (F),	Troxelville,	7-L,	Beaver Springs,	Commercial,	W. J. Bartschat.
114 C. J. Middlesworth (R),	Troxelville,	7-U,	Beaver Springs,	C. V.,	W. J. Bartschat.
85 Wm. H. Ertlinger (R),	Beavertown No. 1,	36-3,	Middleburg,	Bell,	W. J. Bartschat.
899 Ross E. Erb,	Troxelville,	38-3,	Adamsburg,	Bell,	W. J. Bartschat.
Beaver: 267 Wm. R. Howell,	Beavertown,	C. I. Watson, .....	.....	Both phones,	W. J. Bartschat.
268 E. J. Erb,	Middleburg No. 1, .....	.....	.....	.....	W. J. Bartschat.
Centre: 265 L. A. Stine,	Penns Creek, .....	.....	Middleburg,	Bell,	W. J. Bartschat.
265 Josh F. Bingham,	Middleburg No. 2,	J. T. Herman,	Middleburg,	Bell,	W. J. Bartschat.

Chapman: J. Kohler Peck,	McKees Half Falls, .....	.....	.....	.....	Harrisburg.
Franklin: 264 John G. Reigle,	Paxtonville, .....	.....	.....	.....	W. J. Bartschat.
263 W. W. Bruner,	Paxtonville, .....	.....	.....	.....	W. J. Bartschat.
Jackson: 720 Peter Helser,	Kratzerville, .....	.....	Sellsgrove,	Bell,	A. C. Silvius.
Middle Creek: 728 Charles Conley,	Krenner,	J. E. Magee,	Kreamer, .....	.....	W. J. Bartschat.
Monroe: H. A. Herman,	Sellsgrove No. 1, .....	.....	.....	.....	A. C. Silvius.
Penn: I. L. Luck,	Sellsgrove, .....	.....	.....	.....	A. C. Silvius.
Perry: 269 Harvey J. Helm,	Mt. Pleasant Mills,	P. A. Reichenbach,	Sellsgrove,	Bell,	Harrisburg.
Spring: 109 W. C. Maurer (R),	Beaver Springs No. 1,	5-N,	Adamsburg,	C. V.,	W. J. Bartschat.
281 W. I. Woodling,	Beaver Springs,	W. H. Mitchell,	Beaver Springs,	United,	W. J. Bartschat.
282 C. C. Gross,	Beaver Springs,	Benfers Mill,	Beaver Springs, .....	.....	W. J. Bartschat.
Washington: 739 J. M. Hornberger,	Middleburg,	62,	Freemont,	United,	W. J. Bartschat.
740 Henry W. Straub,	Mt. Pleasant Mills,	62,	Freemont,	United,	W. J. Bartschat.
West Perry: 69 J. W. Amig (R),	Richfield,	B. W. Nace,	McAllisterville,	Both phones,	Harrisburg.
270 J. Z. Strauser,	Richfield, .....	.....	.....	.....	Harrisburg.

SOMERSET COUNTY.

Benson Borough: 566 G. P. Benson,	Hollsopple,	G. P. Benson,	Hollsopple,	Somerset,	V. M. Bearer.
567 C. J. Lehman,	Hollsopple,	C. J. Lehman,	Hollsopple,	Johnstown,	V. M. Bearer.
Berlin Borough: 750 George W. Buckman,	Berlin,	G. W. Buckman,	Economy,	Economy and Bell,	V. M. Bearer.
Black: 635 Adam A. Baker,	Rockwood,	Wilson Creek, .....	.....	Somerset,	V. M. Bearer.
Boswell Borough: 557 Ed. Gonder,	Boswell,	Ed. Gonder, .....	.....	Somerset,	V. M. Bearer.
Brothersvalley: 769 S. P. Miller,	Berlin,	23-22, .....	.....	Bell,	V. M. Bearer.
Confidence Borough: 691 E. S. Thomas,	Confidence,	Exchange, .....	.....	Bell,	V. M. Bearer.
Elk Lick: 689 J. S. Stevanus,	Springs,	J. S. Stevanus, .....	.....	Mutual,	V. M. Bearer.
Fairhope: 696 Edgar W. Enrick,	Fairhope,	J. A. Lowry, .....	.....	.....	V. M. Bearer.
Garrett Borough: 751 U. S. Shober,	Garrett,	U. S. Shober,	Somerset,	Bell,	V. M. Bearer.

ROSTER OF FOREST FIRE WARDENS OF PENNSYLVANIA—Continued.
SOMERSET COUNTY—Continued.

Township or Borough, Name.	Address.	Telephone through which warden can be reached.			Reports to
		Call.	Exchange.	Company.	
Greenville:					
687 A. E. Baer,	Sand Patch,	A. E. Baer,	Pocahontas,	Economy,	V. M. Bearer.
Hooversville Borough:					
732 Jerry Armagost,	Hooversville,	J. M. Armogast, .....	.....	Bell,	V. M. Bearer.
Jefferson:					
73 Wilson R. Barndt R),	Somerset No. 3,	W. R. Barndt,	Bakersville,	Jefferson,	V. M. Bearer.
508 Charles I. Gardner,	Somerset No. 3,	C. I. Gardner,	Bell or Economy,	Jefferson,	V. M. Bearer.
506 John H. Sarver,	Somerset No. 3,	W. E. Zufall,	Bakersville,	Jefferson,	V. M. Bearer.
506 Edward Zufall,	Kuhn,	N. G. Moore,	Bell,	Economy,	V. M. Bearer.
507 Nelson G. Moore,					
Jenner:					
501 W. G. Baker,	Boswell No. 2,	Charles Bell,	Bell,	Lincoln Mutual,	V. M. Bearer.
502 Harvey Lohr,	Somerset No. 2,	J. H. Lohr, .....	.....	North Fork,	V. M. Bearer.
Jennertown Borough:					
603 Lee Rauch,	Jennertown,	63-A-11,	Boswell,	Somerset,	V. M. Bearer.
607 Walter Hoffman,	Jennertown,	W. Hoffman,	Boswell,	Somerset,	V. M. Bearer.
Larimer:					
690 George W. Tressler,	Sand Patch,	12-22,	Meyersdale,	Larimer,	V. M. Bearer.
Lincoln:					
503 Edward H. Shaulis,	Somerset No. 3,	E. H. Shaulis,	Somerset,	Economy,	V. M. Bearer.
504 H. W. Shaulis,	Somerset No. 3,	E. H. Shaulis,	Bell,	Jefferson,	V. M. Bearer.
Lower Turkeyfoot:					
719 Alvin Burnworth,	Confluence,	Confluence Hotel, .....	.....	.....	V. M. Bearer.
694 James W. Tannehill,	Ursina,	S. B. Alcott, Store, .....	.....	.....	V. M. Bearer.
733 John S. Thomas,	Confluence No. 1,	Draketown Water Co., .....	.....	.....	V. M. Bearer.
Middlebrook:					
692 D. A. Barron,	Rockwood No. 2,	D. A. Barron,	Rockwood,	Economy,	V. M. Bearer.
Milford:					
703 M. O. Wolfersberger,	Rockwood No. 1,	Mrs. H. L. Hay, .....	.....	Economy,	V. M. Bearer.
Northampton:					
723 H. W. Beachy,	Glencoe,	F. W. Webreck, .....	.....	Northampton,	V. M. Bearer.
731 Edison Brick,	Glencoe,	R-32, .....	.....	.....	V. M. Bearer.
Ogle:					
734 D. H. Whitaker,	Rummell,	238-11,	Windber, .....	.....	V. M. Bearer.
Quemahoning:					
614 Albert S. Hoffman,	Hooversville No. 1,	14, .....	.....	Economy,	V. M. Bearer.
Shade:					
713 George R. Wechtenhiser,	Cairnbrook No. 1,	G. R. Wechtenhiser,	Hooversville,	Central,	V. M. Bearer.

Somerset:					
739 John G. Bender,	Friedens, .....	.....	Somerset,	Bell, Somerset, Econ- omy,	V. M. Bearer.
Southampton:					
688 Harry I. Troutman,	Sand Patch No. 2,	H. I. Troutman,	Kendall,	Larimer,	V. M. Bearer.
Stonybrook:					
732 Wm. H. Foy,	Shanksville,	Wm. H. Foy, .....	.....	Economy,	V. M. Bearer.
Summit:					
718 Russell J. Eagle,	Meyersdale,	R. J. Eagle, .....	.....	Bell,	V. M. Bearer.
Upper Turkeyfoot:					
724 H. Reld Weimer,	Casselman,	H. Reld Weimer,	Rockwood,	Economy and Som- erset,	V. M. Bearer.
Windber Borough:					
693 J. H. Hummell,	Windber,	135-L,	Bell,	Windber,	V. M. Bearer.

SULLIVAN COUNTY.

Cherry:					
813 P. F. McGee,	Dushore No. 1,	11-3,	Dushore,	Bell,	John A. Bastian.
820 Chas. W. Morter,	Mildred,	L. J. Lowry,	Dushore,	Bell,	Warrensburg, Pa.
819 Daniel R. Morter,	Mildred,	L. J. Lowry, .....	.....	.....	John A. Bastian.
Colley:					
818 Otto Behr,	Lopez,	McGee Hotel, .....	.....	.....	John A. Bastian.
817 W. L. Dyer,	Dushore,	19-14,	Dushore,	Bell,	John A. Bastian.
813 Wilson Kibler,	Ricketts,	W. Kibler,	Dushore,	Bell,	John A. Bastian.
880 Thomas Kille,	Lopez,	Dr. Christian,	Dushore,	Bell,	John A. Bastian.
Eaglesmere Borough:					
882 J. W. Amiller,	Eaglesmere,	Exchange,	Eaglesmere,	Bell,	John A. Bastian.
Elkland:					
879 G. E. Hugo,	Campbellsville,	Henry Fawcett,	Estella,	Independent,	John A. Bastian.
884 W. T. Moore,	Forks,	W. T. Moore,	Estella,	Independent,	John A. Bastian.
Forks:					
878 G. W. Kester,	Campbellsville,	G. W. Kester,	New Albany,	Bell,	John A. Bastian.
883 A. T. Wilcox,	Forks,	A. T. Wilcox,	Estella,	Independent,	John A. Bastian.
Fox:					
849 J. W. Frey,	Wheelerville,	M. E. Morgan,	Shunk, .....	.....	John A. Bastian.
Hillsgrove:					
877 Samuel Darby,	Hillsgrove,	Samuel Darby,	Hillsgrove,	United,	John A. Bastian.
876 Samuel Snell,	Hillsgrove,	Samuel Snell,	Estella,	United,	John A. Bastian.

SULLIVAN COUNTY—Continued.

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SUSQUEHANNA COUNTY.

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TIOGA COUNTY.

T. C. Harbeson.
T. C. Harbeson.
T. C. Harbeson.
P. H. Mulford.

ROSTER OF FOREST FIRE WARDENS OF PENNSYLVANIA—Continued.
 TIOGA COUNTY—Continued.

Township, Name, Number.	Address.	Telephone Through Which Warden Can Be Reached.			Reports to.
		Call.	Exchange.	Company.	
Chatham: 327 Everett J. Cooper,	Little Marsh,	E. J. Cooper,	Little Marsh,	Gilbrook Farmers, ..	T. C. Harbeson.
Olymer: 356 Frank C. Payne,	Westfield No. 4,	Ed. Thompson,	Westfield,	Farmers,	T. C. Harbeson.
789 Howard L. Payne,	Little Marsh,	Joe Short,	Westfield,	Farmers,	T. C. Harbeson.
Covington: 534 M. V. Jackson,	Covington,	11-I,	Mansfield,	Mutual,	T. C. Harbeson.
Deerfield: 328 C. S. Merrick,	Academy Corners,	4,	Knoxville,	Bell,	T. C. Harbeson.
H. S. Burns,	Academy Corners,	4,	Knoxville,	Bell,	T. C. Harbeson.
Delmar: 151 Jerome J. Wheeler (R.),	Wellsboro,	H. D. Wheeler,	N. Y. C. & H. R. R., ..	Both 'phones,	T. C. Harbeson.
381 Ralph Torpy,	Wellsboro No. 2,	R. Torpy,	Stony Fork,	Farmers,	T. C. Harbeson.
390 E. J. Tuttle,	Wellsboro No. 1,	94-C,	Wellsboro,	Mutual,	T. C. Harbeson.
329 Noyes Lawton,	Thadaghton,	12-5,	Wellsboro,	Bell,	T. C. Harbeson.
Duncan: 523 Frank E. Howe,	Antrim,	Exchange,	Antrim,	Bell,	T. C. Harbeson.
Elk: 128 Robert Schwab (R.),	Lloyd,	R. Schwab,	Germania,	Bell,	T. C. Harbeson.
387 A. E. Smith,	Gaines No. 1,	A. E. Smith,	Watrous,	Bell,	T. C. Harbeson.
436 Wm. Brecher,	Gaines No. 1,	John Bally,	Watrous,	Elk Run,	T. C. Harbeson.
622 Chas. Scanlin,	Lectonia,	Central Pa. Lbr. Co., ..	Lectonia,	Bell,	T. C. Harbeson.
Farmlington: 599 A. Lee Kemp,	Nelson,	19-M,	Nelson,	Mutual,	T. C. Harbeson.
Galnes: 104 Leon F. Lewis (R.),	Gaines,	4-E,	Watrous,	Elk Run,	P. H. Mulford.
590 L. M. Smith,	Gaines,	1-L,	Watrous,	Elk Run,	P. H. Mulford.
Hamilton: 530 G. H. Higland,	Morris Run,	2-H,	Watrous,	Farmers,	T. C. Harbeson.
Jackson: 568 Edwin E. Dailey,	Millerton,	E. E. Dailey,	Bell or Mutual,	Farmers,	T. C. Harbeson.
Lawrence: 904 Elijah Callahan,	Tioga No. 2,	E. Callahan,	Lawrenceville,	Farmers,	T. C. Harbeson.
Liberty: 576 Isaac R. Werline,	Liberty,	Exchange,	Liberty,	Both 'phones,	T. C. Harbeson.
Middlebury: 568 Frank Davis, Jr.,	Middlebury Center, ..	12-C,	Middlebury,	Mutual,	T. C. Harbeson.

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Morris: 57 Thos C. Harbeson (F.),	Lloyd,	T. C. Harbeson,	Morris,	Farmers' Mutual, ..	Harrisburg.
86 M. Leo Fish (R.),	Lloyd,	Blackwell's Store, ..	Morris,	Bell,	T. C. Harbeson.
331 H. I. Fick,	Morris,	Blackwell's Store, ..	Morris,	Mutual,	T. C. Harbeson.
553 R. S. Brown,	Morris,	H. I. Fick,	Liberty,	Mutual,	T. C. Harbeson.
569 Robert P. Heyler,	Morris,	R. S. Brown,	Morris,	Bell,	T. C. Harbeson.
575 Herman Campbell,	Lloyd,	R. P. Heyler,	Morris,	Bell,	T. C. Harbeson.
374 Jas. I. Beagle,	Morris,	A. H. & R. J. Black- well,	Morris,	Farmers,	T. C. Harbeson.
Osceola Borough: 796 D. M. Brown,	Elkland,	Exchange,	Morris,	Farmers,	T. C. Harbeson.
Richmond: Nathan Niles,	Mansfield No. 2, ..	4-M,	Rutland,	Mutual,	P. H. Mulford.
Rutland: 565 W. B. Niles,	Mansfield,	4-M,	Rutland,	Mutual,	T. C. Harbeson.
Shippen: 41 Paul H. Mulford (F.),	Asaph,	89-13,	Wellsboro,	Bell,	Harrisburg.
96 E. N. Jencks (R.),	Asaph,	89-3,	Wellsboro,	Farmers,	P. H. Mulford.
467 O. E. Peters,	Wellsboro No. 4, ..	100-I,	Wellsboro,	Farmers,	P. H. Mulford.
Sullivan: 592 Elmer E. Updyke,	Mainesburg,	E. E. Updyke,	Sylvania,	Mutual,	T. C. Harbeson.
Tioga: 545 William Kimball,	Tioga,	W. Kimball,	Tioga,	Farmers,	T. C. Harbeson.
Ward: 577 Daniel Austin,	Morris Run,	Exchange,	Morris Run,	Both 'phones,	T. C. Harbeson.
Westfield: 389 Harry G. Miller,	Potterbrook,	H. G. Miller,	Westfield,	Gilbrook,	T. C. Harbeson.

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UNION COUNTY.

Buffalo: 275 Harry S. Frock,	Lewisburg,	196-4,	Lewisburg,	Buffalo Valley,	A. C. Silvius.
East Buffalo: 304 A. C. Machamer,	Lewisburg,	F. D. Relgie,	Lewisburg,	Both 'phones,	A. C. Silvius.
Gregg: Robert Brown,	Allenwood,	7-3,	Millinburg,	Bell,	C. E. Baer.
Hartley: 84 A. C. Silvius (F.),	Laurelton,	7-3,	Millinburg,	Bell,	Harrisburg.
265 David Libby (R.),	Laurelton,	7-3,	Millinburg,	Bell,	C. R. Meek.
393 W. H. Libby,	Millmont,	9-5,	Millinburg,	Bell,	A. C. Silvius.
410 John C. Rubi,	Millmont,	H. J. Close,	Millinburg,	Bell,	A. C. Silvius.
24 S. E. Osenbaugh,	Millmont No. 2, ..	251-7,	Lewisburg,	Bell,	C. R. Meek.
768 Jas. M. Hironimus,	Laurelton,	251-7,	Lewisburg,	Bell,	R. B. Winter.
Kelly: 276 O. C. Eisenhauer,	Lewisburg,	251-7,	Lewisburg,	Bell,	R. B. Winter.

ROSTER OF FOREST FIRE WARDENS OF PENNSYLVANIA—Continued.

UNION COUNTY—Continued

Township, Name, Number.	Address.	Telephone Through Which Warden Can Be Reached.			Reports to.
		Call.	Exchange.	Company.	
Lewis: 148 J. W. Welshans (R.), 242 J. W. Zimmerman, 242 J. C. Snyder, 277 H. J. Walburn, Limestone: 246 J. F. Brouse, 223 F. P. Dauberman, West Buffalo: 62 Raymond B. Winter (F.), 125 Stephen M. Roadarmel (R.), White Deer: 89 D. R. Harbeson (R.), 521 Jim Depo,	Loganton No. 1, Loganton, Millmont, Millmont, Mifflinburg, New Berlin, Mifflinburg, Mifflinburg, White Deer, West Milton,	621-F-2, 62-8, 628, 616, 71-R-2, 22-2, 22-2 and 100-9, D. R. Harbeson, Chas. Reist,	Loganton, D. H. Klingman, Mifflinburg, Mifflinburg, Mifflinburg, Mifflinburg, Watsonstown, Lewisburg,	Commercial, Bell, Bell, Bell, Buffalo Valley, Buffalo Valley, Bell, Bell,	H. S. Metzger. H. S. Metzger. A. C. Silvius. A. C. Silvius. A. C. Silvius. A. C. Silvius. Harrisburg. R. B. Winter. H. S. Metzger. R. B. Winter.

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VENANGO COUNTY.

Canal: Cranberry: Burley Hogue, Clinton: Samuel Landis, Cornplanter: C. G. Arrowsmith, Irwin: J. L. Hileman, Jackson: J. B. Shoffstall, Mineral: L. F. Perrine, Oakland: D. W. Pritchard, Plum: William Shadle, W. R. Walsh,	Franklin, Tenmile Bottom, Kennerdell, Oil City No. 2, Harrisville No. 64, Cooperstown, Raymliton, Franklin No. 3, Diamond, Cooperstown,	 Wm. Shadle,	 Titusville, Pet,		Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg.
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Richland: Joseph M. Nickle, Rockland: J. L. Taylor, John Hart, G. W. Bushey, Sandycreek: Jonathan Grindler, Scrubgrass: E. A. Latshaw,	Nickleville, Kennerdell No. 1, Kennerdell No. 1, East Sandy No. 1, Franklin, Kennerdell No. 2,				Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg.
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WARREN COUNTY.

Brokenstraw: W. M. Volentine, E. N. Babcock, Thomas Mariner, Cherry Grove: E. M. Farnsworth, Columbus: E. G. Carrier, Columbus Borough: Archib J. Damon, Corydon: O. J. Tome, Deerfield: James L. Sutton, Freehold: L. S. Chapman, Glade: Arthur Winchester, Grand Valley Borough: R. E. Vaughn, Kinross: Walter H. Newton, Limestone: W. C. Averill, Pleasant: Peter Liberty, Sheffield: Richard Bloss, Spring Creek: Clayton E. Stearns, Sugar Grove Borough: James Brookmire, Tidionte Borough: P. A. Anderson, Trumph: Charles T. Strite,	Irvine, Youngsville, Youngsville, Cherry Grove, Corry No. 8, Columbus, Corydon, Torpedo No. 1, Bear Lake, Warren No. 1, Grand Valley, Kinross, Tidionte, Warren, Sheffield, Spring Creek, Sugar Grove, Tidionte, Grand Valley No. 2,	1509-R-5, Thos. Mariner, E. M. Farnsworth, Exchange, 1501-R-41, 39-K, Warren Sanson,	Warren, Youngsville, Torpedo, Warren, Corry, Grand Valley,	Bell, Union, Bell, Bell, Union, Union,	Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg. Harrisburg.
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ROSTER OF FOREST FIRE WARDENS OF PENNSYLVANIA—Continued.
WARREN COUNTY—Continued.

Township, Name, Number.	Address.	Telephone Through Which Warden Can Be Reached.			Reports to.
		Call.	Exchange.	Company.	
Warren Borough: Gilbert A. Denniston,	Warren.				Harrisburg.
Watson: C. W. Arp.	Warren No. 4.				Harrisburg.

WAYNE COUNTY.

Berlin: Alexander Crosby,	Beech Lake.	W. H. Dunn, 5-4.		Bell.	Harrisburg.
Bethany Borough: Charles W. Wood,	Bethany.		Bethany.	Bell.	Harrisburg.
Buckingham: John Muranie,	Starlight.	J. T. Muranie,	Shellockton or Lake Cono.	Bell.	Harrisburg.
E. W. Chapman, James Spratt,	Equinunk. Lake Cono.				Harrisburg.
Canaan: Fred W. Short,	Waymart No. 2.	810.	Waymart.	Consolidated.	Harrisburg.
Cherry Ridge: 384 G. W. Collins,	Hoadleys.	921-4.	Honesdale.	Bell.	Strobeck.
Clinton: I. W. Cowperthwaite,	Waymart No. 1.	I. W. Cowperthwaite.	Forest City.	North Eastern.	Harrisburg.
Damascus: Junius Young,	Milanville.				Harrisburg.
Dreher: 527 E. D. Dunning, J. B. Krantz,	South Sterling. Newfoundland.	4-3.	Newfoundland. Newfoundland.	Bell. Bell.	Strobeck. Harrisburg.
Hawley Borough: 903 Edgar Tuthill,	Hawley.	33-J.	Hawley.	Bell.	Harrisburg.
Lake: 411 Earl W. Swingle,	Varden.	22-D.	Arlet.	Paupack.	Strobeck.
Lebanon: C. D. Henderson,	Honesdale No. 3.	Rutledge Store.	Rileyville.		Harrisburg.
Lehigh: 383 John Courtney,	Gouldsboro.		Gouldsboro.	Bell.	Strobeck.

Manchester: J. W. Harford,	Equinunk.	Exchange.	Equinunk.	South Branch.	Harrisburg.
Mount Pleasant: H. W. Mills,	Pleasant Mount No. 2.				Harrisburg.
Oregon: Henry Grossman,	Honesdale No. 3.	904-14.	Honesdale.	Bell.	Harrisburg.
Palmyra: Anthony Schlosser,	Hawley No. 1.	Geo. Kehr, 5-3-4.	Hawley.	Swamp Brook.	Harrisburg.
Paupack: 332 Charles A. Daniels, Lafayette James,	Lakeville. Lakeville.	15-N.	Lake Arlet.	Paupack.	Strobeck. Harrisburg.
Preston: J. L. Sherwood, Jr.,	Preston.				Harrisburg.
Prompton Borough: S. E. Bates,	Prompton.				Harrisburg.
Salem: 385 A. B. Walker,	Hamlin.	15-A.	Hamlin.	Bell.	Strobeck.
South Canaan: A. I. Robinson,	Waymart No. 2.	2-12.	South Canaan.	South Canaan.	Harrisburg.
Starrucca Borough: George F. Brooker,	Starrucca.				Harrisburg.
Sterling: I. S. Simons,	Madisonville.	J. G. Simons.	Madisonville.	Moscow & Sterling.	Harrisburg.
Waymart Borough: Joseph C. Denk,	Waymart.	J. B. Dymond.		Bell.	Harrisburg.

WESTMORELAND COUNTY.

Cook: 630 I. A. Knapp, 450 W. H. Enos, 481 L. A. Ankney, 542 N. J. Monticue, 638 Elmer Campbell,	Kregar. Crisp. Crisp. Stahlstown. Ligonier No. 3.	J. W. Phillippi, W. T. Weaver, W. T. Weaver, 12-R-20.	Stahlstown. Stahlstown. Stahlstown. Derry.		V. M. Bear. V. M. Bear. V. M. Bear. V. M. Bear.
Derry: 605 John Schwalm, 492 L. C. Shanefelter,	Millwood. New Alexandria, No. 1.	51-R-5. 17-R-11.	New Alexandria.	Bell. Bell.	V. M. Bear. V. M. Bear.
Donegal: 601 Mahlon H. Lenhart, 600 William Roadman,	Donegal. Kregar.	2-R-23. Wm. Roadman.	Latrobe (Bell). Ligonier.	Ligonier Valley. Ligonier Valley.	V. M. Bear. V. M. Bear.
Fairfield: 612 Bert Reed, 493 G. E. McDowell, 494 John Frain,	New Florence. Bolivar. Bolivar.	S. T. Ford. 3-R-23.	Johnstown or Bolivar. Hamill School.	Bell. Bell.	V. M. Bear. V. M. Bear.
Hempfield: 717 David H. Rankin,	Penns Station.	107-J. 200-J.	Jeannette.	Bell.	V. M. Bear.

ROSTER OF FOREST FIRE WARDENS OF PENNSYLVANIA—Continued.
YORK COUNTY—Continued.

Township, Name, Number.	Address.	Telephone Through Which Warden Can Be Reached.			Reports to.
		Call.	Exchange.	Company.	
Conevago: E. A. Bear,	York No. 8,	Bear Bros. Cigar Factory.	Zions View, .....	.....	Harrisburg.
Cross Roads Borough: Henry Hershner,	Felton No. 2, .....	.....	.....	.....	Harrisburg.
Dallastown Borough: J. T. Grim,	Dallastown, .....	.....	.....	.....	Harrisburg.
Dillsburg Borough: C. K. Weaver,	Dillsburg,	S-245,	Dillsburg,	York,	Harrisburg.
East Hopewell: J. C. Torbert,	Laurel, .....	.....	.....	.....	Harrisburg.
East Manchester: East Wm. M. Hoover,	Saginaw, .....	.....	.....	.....	Harrisburg.
Fawn: Isaac Reed,	Muddy Creek Forks, .....	.....	.....	.....	Harrisburg.
Fawn Grove Borough: J. W. Brooks,	Fawn Grove,	L. E. Devilbiss,	Fawn Grove,	York Eastern,	Harrisburg.
Franklin: Henry C. Sheaffer,	Dillsburg No. 1,	85-4,	Dillsburg,	Bell,	Harrisburg.
Glen Rock Borough: W. T. Snyder,	Glen Rock, .....	.....	.....	.....	Harrisburg.
Jackson: H. L. Yohe,	Spring Grove,	E. D. Stambaugh,	Spring Grove,	York,	Harrisburg.
Lower Chanceford: George Sinclair,	Woodbine No. 1,	Geo. Sinclair,	Airville,	Bell,	Harrisburg.
Lower Windsor: John H. Fry,	Wrightsville No. 1,	Howard C. Fry, .....	.....	York,	Harrisburg.
Manchester: Henry Altland,	York No. 8, .....	.....	.....	.....	Harrisburg.
Monaghan: John A. Laird,	Siddonsburg,	27-2,	Mechanicsburg,	Bell,	Harrisburg.
Newberry: J. Frank Zortman,	Newberrytown, .....	.....	.....	.....	Harrisburg.
North Codorus: L. W. Feistel,	York No. 11,	John Snyder, Y-265, .....	.....	York,	Harrisburg.
North Hopewell: W. F. Newhouse,	Glen Rock No. 1, .....	.....	.....	.....	Harrisburg.
North York: G. A. Fetrow,	948 Duke, York, .....	.....	.....	.....	Harrisburg.

Peach Bottom: Joseph E. Wiley,	Delta No. 4, .....	.....	.....	.....	Harrisburg.
Penn. A. L. Serff,	Hanover, .....	.....	.....	.....	Harrisburg.
Redlion Borough: J. F. Strayer,	Red Lion,	293,	Red Lion,	York,	Harrisburg.
Seven Valley: Harry F. Groff,	Seven Valley, .....	.....	.....	.....	Harrisburg.
Springfield: Frank J. Beck,	Jacobus,	T-22-13,	York,	Bell,	Harrisburg.
Spring Garden: E. Rouse,	York No. 2,	Geo. Shearer, 1007-M,	York,	York,	Harrisburg.
West Manheim: Lloyd G. Garrett,	Hanover,	612-Y-E,	Hanover,	Pleasant Hill,	Harrisburg.
Windsor: H. F. Shenberger,	Felton, .....	.....	.....	.....	Harrisburg.
Winterstown Borough: Daniel F. Brenneman,	Springvale No. 1,	Snyder's Store, 7-R-3,	York,	Bell,	Harrisburg.

FOREST FIRE WARDENS OF THE HARRISBURG OFFICE.

GEORGE H. WIRT, Chief Forest Fire Warden.

1 HOWARD W. SIGGINS.

13 W. GARD CONKLIN.

27 JESSE M. HOUTZ.

34 N. R. McNAUGHTON.

43 WALTER M. MUMMA.

44 MAURICE MUSTIN.

49 HORACE B. ROWLAND.

55 EDGAR H. SMITH.

64 CHARLES E. WOOF

END OF NUMBER